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pt. 20/2

PATENTS FOR INVENTIONS.

ABRIDGMENTS

OF

Specifications

RELATING TO

WEAVING.

PART II.—A.D. 1860–1866.

PRINTED BY ORDER OF THE COMMISSIONERS OF PATENTS.

BIBLIOTHECA BODLEIANA
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NDON:
GEOR AND WILLIAM SPOTTISWOODE,
S MOST EXCELLENT MAJESTY.
HED AT THE
RS OF PATENTS FOR INVENTIONS,
ON BUILDINGS, HOLBORN.

1871.

PREFACE.

THE Indexes to Patents are now so numerous and costly as to render their purchase inconvenient to a large number of inventors and others, to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of Invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the printed copies of the latter are sold have been added.

The number of Specifications from the earliest period to the end of the year 1866 amounts to 59,222. A large proportion of the Specifications enrolled under the old law, previous to 1852, embrace several distinct inventions, and many of those filed under the new law of 1852 indicate various applications of the single invention to which the Patent is limited. Considering, therefore, the large number of inventions and applications of inventions to be separately dealt with, it cannot be doubted that several properly belonging to the group which forms the subject of this volume have been overlooked. In the progress of the whole work such omissions will, from time to time, become apparent, and be supplied in second or supplemental editions.

This volume is a continuation of the "Abridgments of " Specifications relating to Weaving," already published, and brings the *Abridgments* to the end of the year 1866.

From that date the Abridgments have not been published in classes, but will be found in chronological order in the quarterly volumes of the "Chronological and Descriptive Index" (*see* List of Works at the end of this book). It is intended, however, to publish these Abridgments in classes as soon as the Abridgments of all the Specifications from the earliest period to the end of 1866 have appeared in a classified form. Until that takes place, the reader (by the aid of the Subject-matter Index for each year) can continue his examination of the Abridgments relating to the subject of his search in the Chronological and Descriptive Index.

In this volume, as in Part I., are included not only the inventions relating to looms, but also the apparatus for sizing, warping, and beaming yarns, likewise inventions for producing woven fabrics of novel structure, new materials, or new combinations of materials. Inventions for producing chenille by weaving are included, but not the production of chenille by twisting; inventions of the latter class will be found in the Abridgments relating to "Lace and other "Looped and Netted Fabrics." Machines for winding pirns as a preparatory operation to weaving are in this series; but inventions relating to the production of pirns or cops in the processes of spinning and doubling are not included. Machines for winding yarns generally are in the series of Abridgments relating to "Spinning," and are excluded from the "Weaving" Abridgments except where there is a necessary connection with the inventions strictly belonging to this series.

The Abridgments marked thus (* *) in the following pages were prepared for another series or class, and have been transferred therefrom to this volume.

January, 1871. B. WOODCROFT.

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INTRODUCTION.

In the introduction to the first part of "Abridgments of "Specifications relating to Weaving" a short account was given of the art in ancient times. It was mentioned that the earliest suggestion yet met with for the construction of an automatic or power loom was by M. De Gennes, published in the Journal des Sçavans at Paris, in 1678. It is now proposed to give a short account of the origin of the present method of weaving. In the year 1733 John Kay obtained a Patent (No. 542) for the fly shuttle, and in the year 1760 his son Robert Kay invented the drop box.

"About the middle of the eighteenth century a swivel loom "was invented by M. Vaucanson; and in 1765 a weaving "factory, probably filled with these looms, was erected by Mr. "Garside at Manchester." (See Baines' History of the Cotton "Manufacture, page 229.)

In the year 1745, John Kay and Joseph Stell obtained a Patent (No. 612) for a loom for weaving tapes and other goods in narrow breadths, which, they state, "may go or be worked by "hands, water, or any other force." In the lower part of the loom was a roller carrying a pin which took into a notch in a hollow roller which partly enclosed the first roller. To the hollow roller were fixed "tappets" which worked the treadles, the batten, and the picking motion; the batten was struck to the web by a weight and spring.

In the year 1774, Robert and Thomas Barber obtained a Patent (No. 1083) for a power loom in which the pickers run on horizontal rods and are actuated by springs held back by cams, the treadles are worked by arms on the driving shaft, and the beat of the lay is performed by means of a box lifted by a lever also on the driving shaft.

In the year 1785, Dr. Edmund Cartwright obtained a Patent (No. 1470) *for a vertical* power loom, which was the first practical power loom. The circumstances which led to the invention have been thus described in a letter from himself to Mr. Bannatyne, inserted in the Encyclopædia Britannica:—"Happening to be at Matlock in the summer of 1784, I " fell in company with some gentlemen of Manchester, when " the conversation turned on Arkwright's spinning machinery. " One of the company observed, that as soon as Arkwright's " patent expired, so many mills would be erected, and so much " cotton spun, that hands never could be found to weave it. To " this observation I replied, that Arkwright must then set his " wits to work to invent a weaving mill. This brought on a conversation on the subject, in which the Manchester gentlemen " unanimously agreed that the thing was impracticable; and, in " defence of their opinion, they adduced arguments which I " certainly was incompetent to answer, or even to comprehend, " being totally ignorant of the subject, having never at that " time seen a person weave. I controverted, however, the impracticability of the thing by remarking that there had lately " been exhibited in London an automaton figure which played " at chess. Now you will not assert, gentlemen, said I, that it " is more difficult to construct a machine that shall weave, than " one which shall make all the variety of moves which are required " in that complicated game. Some little time afterwards, a " particular circumstance recalling this conversation to my mind, " it struck me that, as in plain weaving, according to the conception I then had of the business, there could only be three " movements, which were to follow each other in succession, " there would be little difficulty in producing and repeating " them. Full of these ideas, I immediately employed a carpenter and smith to carry them into effect. As soon as the " machine was finished, I got a weaver to put in the warp, which " was of such materials as sail-cloth is usually made of. To my " great delight a piece of cloth, such as it was, was the produce. " As I had never before turned my thoughts to anything mechanical, either in theory or practice, nor had ever seen a loom " at work, or knew anything of its construction, you will readily " suppose that my first loom was a most rude piece of machinery. " The warp was placed perpendicularly, the reed fell with the " weight of at least half a hundredweight, and the springs which " *threw* the shuttle were strong enough to have thrown a " *Congreve rocket*. In short, it required the strength of two

" powerful men to work the machine at a slow rate, and only for " a short time. Conceiving, in my great simplicity, that I had " accomplished all that was required, I then secured what I " thought a most valuable property by a Patent 4th of April " 1785. This being done, I then condescended to see how other " people wove; and you will guess my astonishment when I " compared their easy modes of operation with mine. Availing " myself, however, of what I then saw, I made a loom in its " general principles nearly as they are now made. But it was " not till the year 1787 that I completed my invention, when " I took out my last weaving Patent, August 1st of that year" (No. 1616).

Dr. Cartwright undertook manufacturing with power looms at Doncaster, but the concern was unsuccessful.

In 1808 he presented a petition to Parliament for remuneration for his invention of the power loom, on which he showed that he had spent upwards of 30,000*l*. in bringing it to perfection; and in the following year a grant of 10,000*l*. was made to him by Parliament for "the great service he had rendered to the " public by his invention of weaving."

"About 1790 Messrs. Grimshaw, of Gorton, under a licence " from Dr. Cartwright, erected a weaving factory at Knott Mills, " Manchester, and attempted to improve the power loom at great " cost to themselves. They did not succeed, and the factory " being burnt down they abandoned the undertaking. In 1794 " a power loom was invented by Mr. Bell, of Glasgow, which " was likewise abandoned. On the 6th of June 1796 (28th June " 1796, No. 2122) Mr Robert Miller, of Glasgow, took out a " Patent for a machine of this nature, which a spirited individual, " Mr. John Monteith, adopted in 1801, and fitted up a mill at " Pollokshaws, Glasgow, with two hundred looms."—(Baines' History of the Cotton Manufacture.)

When the power loom was first introduced, various attempts were made by Dr. Cartwright and others to dress the warp in the loom.

In the year 1803, Thomas Johnson obtained a Patent (No. 2684) for the dressing machine. Johnson was a mechanic in the employment of Messrs. Radcliffe and Ross, of Stockport, and the success of the dressing machine was chiefly due to the energy and perseverance of Mr. Radcliffe.

Formerly, for weaving figured fabrics by means of a draw loom, two persons were necessary, the weaver and the draw boy. In the year 1779, William Cheape obtained a Patent (No. 1237) for a method of arranging a draw loom so as to do without the assistance of a draw boy. This mechanical draw boy was improved by others, and continued in use until the introduction of the jacquard machine, the invention of M. Jacquard. Dr. Ure, in "The Philosophy of Manufactures," gives the following history of this invention :—

"The inventor of that beautiful mechanism" (the jacquard loom) "was originally an obscure straw hat manufacturer, who " had never turned his mind to automatic mechanism till he had " an opportunity by the peace of Amiens of seeing in an English " newspaper the offer of a reward by our Society of Arts to any " man who should weave a net by machinery. He forthwith " roused his dormant faculties, and produced a net by mechanism ; " but not finding the means of encouragement in the state of " his country, he threw it aside for some time, and eventually " gave it to a friend as a matter of little moment. The net, how" ever, got by some means into the hands of the public authori" ties, and was sent to Paris. After a considerable period, when " Jacquard had ceased to think of his invention, the prefect of " the department sent for him, and said, 'You have directed " 'your attention to the making of net by machinery?' He did " not immediately recollect it, but the net being produced " recalled everything to his mind. On being desired by the " prefect to make the machine which had led to that result, " Jacquard asked three weeks' time for the purpose. He then " returned with it, and requested the prefect to strike with his " foot on a part of the machine, whereby a mesh was added to " the net. On its being sent to Paris, an order was issued for " the arrest of its constructor by Napoleon in his usual sudden " and arbitrary way. He was placed immediately in charge of a " gendarme, and was not allowed to go to his house to provide " himself with necessaries for his journey. Arrived in the " metropolis, he was placed in the *Conservatoire des Arts*, and " required to make the machine there in the presence of inspec" tors, an order with which he accordingly complied.

" On his being presented to Bonaparte and Carnot, the former " *addressed him* with an air of incredulity in the following coarse

" language:—'Are you the man who pretends to do what God " 'Almighty cannot do, to tie a knot in a stretched string?' He " then produced the machine, and exhibited its mode of opera" tion. He was afterwards called upon to examine a loom on " which from 20,000 to 30,000 francs had been expended, for " making fabrics for Bonaparte's use. He undertook to do by " a simple mechanism what had been attempted in vain by a very " complicated one; and taking as his pattern a model machine " of Vaucanson, he produced the famous jacquard loom. He " returned to his native town, rewarded with a pension of 1,000 " crowns, but experienced the utmost difficulty to introduce his " machine among the silk weavers, and was three times exposed " to imminent danger of assassination. The *Conseil des Prud'* " *hommes*, who are the *official* conservators of the trade of Lyons, " broke up his loom in the public place, sold the iron and wood " for old materials, and denounced him as an object of universal " hatred and ignominy. Nor was it till the French people were " beginning to feel the force of foreign competition, that they " had recourse to this admirable aid of their countryman."

WEAVING.

1860.

A.D. 1860, January 6.—N° 39.

KNOWLES, JOHN.—These improvements relate to looms with "index machines;" they are,—

"Firstly, constructing the rods of index machines with their "catch bars, three-armed levers and treadles, in such manner "that the treadles act upon the rods through the medium of the "catch bars."

"Secondly, adapting and applying index rods, constructed "and combined with catch bars and three-armed levers, "similarly to those lastly before mentioned, to the purpose of "raising and depressing the lifting levers of moveable shuttle "boxes."

"Thirdly, adapting and applying index rods, constructed and "combined with catch bars and three-armed levers, similarly to "those mentioned in the first claim, to the purpose of actuating "the driving click of the taking-up apparatus."

Fourthly, "using in connection with each leaf of healds, two "separate and distinct index rods, the one for raising, the other "for depressing the jacks."

"Fifthly, arranging index machines in an horizontal position, "and connecting their index rods with the healds through the "intervention of three-armed or T-shaped levers."

Sixthly, "constructing index rods which work horizontally, "and which raise or depress the healds by means of slots, "grooves, ribs, or flanches formed in or raised upon the said "index rods, and having a direction oblique or inclined to the "direction of the motion of the rods. The rods being made to "move longitudinally by the usual means, the slots, grooves, "ribs, or flanches, raise or depress friction rollers pivoted upon "studs or pins projecting from vertical rods, which work trans"versely *to the index rods* and have their extremities attached "*to the jacks.*"

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Seventhly, "adapting and applying an index rod, constructed "according to the method lastly before described, to the purpose "of elevating and depressing the lifting lever of a pair of moveable "shuttle boxes."

"Eighthly, constructing index rods adapted to raise and "depress the healds by means of rotary motion communicated "to wheels or pulleys."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1860, January 14.—N° 108.

DAVID, Autoine.—(*A communication from Ennemond David.*) —This invention relates to a double shed jacquard apparatus applicable to weaving ribbons and other fabrics. The "hooks" in this apparatus are "composed of two branches of unequal "length, which both terminate in a bend of similar form to "that at the upper ends of the hooks heretofore employed. "The two branches of each hook are soldered or connected "together," and small loops are formed for the attachment of the harness of "the loom." The lower parts of the hooks "pass "through holes in a board which guide them in their movement." The needles "are furnished with projections in place of rings or "loops, and they act on the hooks by pressure only; the hooks "are themselves springs, and the needle springs of the ordinary "machines are not employed. Two needles with projections "are necessary to act upon one of the double hooks." "Two "griffes furnished with blades are necessary for this mechanism," one having double the lift of the other; also two card cylinders at opposite sides of the machine.

[Printed, 10*d.* Drawings.]

A.D. 1860, January 17.—N° 116.

FEARNLEY, Samuel.—"Improvements in looms for weaving "looped or pile fabrics, some parts of which improvements are "applicable to other kinds of looms."

The improvements consist, firstly, in an instrument in the form of a fork fixed to the framework of the loom for the purpose of holding the pile wires in the desired position.

"Secondly, in making the heads or pieces of metal to which "the pile wires are fixed of a peculiar shape or form," with "*slits or slots for* the purpose of taking on to the said forked "*apparatus.*"

Thirdly, in an improved carriage for inserting and withdrawing the pile wires, also in a "screw or worm" for guiding the points of the pile wires.

Fourthly, "in an improved mode of guiding the heddles in "looms by making the heddle guides in such a manner that the "threads or warp which pass through the eyes of the heddles "will not have to pass and repass through the eyes as the heddles "are moved up and down to form the shed, because the eyes "move in a circle through and by means of the heddle guides "which act on the heddles."

Fifthly, in applying pulleys and bands to the tension rollers for the purpose of holding the warp while the beat-up takes place; the band is connected to the lay or to a lever and cam.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1860, January 17.—N° 121.

BURROWS, Benjamin.—"Improvements in looms for weaving "narrow fabrics."

"The peculiarity of this invention consists in combining the "simultaneous use of two or more shuttles to each narrow "fabric when the looms are arranged to make two or more rows "of narrow fabrics one above the other."

Another part of the invention "consists in constructing looms "for weaving narrow fabrics in such manner that three or more "shuttles may be used in the making of each fabric, the whole "of the shuttles for each fabric being simultaneously moved "through three or more sheds simultaneously opened in the "warps of which a narrow fabric is formed."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1860, January 21.—N° 162.

McDOUGALL, Alexander.—"Improvements in the prepara- "tion of materials used for sizing, dressing, or finishing yarns "or threads, and woven fabrics, applicable also to sizing paper."

The patentee says:—"According to my invention I mix steatite, "soapstone, meerschaum, or an analogous compound of silica and "magnesia (such as talc), in a finely divided state, with the "materials commonly used for sizeing, dressing, or finishing "yarns or threads and woven fabrics, and for sizeing paper."

[Printed, 4d. No Drawings.]

A.D. 1860, January 23.—N° 168.

NEWTON, Alfred Vincent.—(*A communication from Luther Robinson.*)—" This invention relates to certain means of regulating " the delivery of yarn from the yarn or warp beams of looms, " through the tension produced on the cloth and warp by the " take-up motion. The yarn is delivered from the beam through " the agency of a worm and worm wheel as usual, but instead of " the delivery action of the worm being continuous it is intermittent, a determinate extreme tension of the warp being the " means of throwing the worm into a state of action."

[Printed, 8*d*. Drawing.]

A.D. 1860, January 28.—N° 218.

GRAY, Alexander.—This " invention relates to that portion " of the mechanism of power looms by which the picking stick " or lever is actuated."

"The improvements are especially designed for the well-known " arrangement of power loom in which the picking levers turn on " centres at or near the base of the loom, and work in a plane " parallel to and moving with the lathe."

The patentee claims, " the actuating of the picking levers of " power looms by means of intermediate bell-crank levers."

[Printed, 6*d*. Drawing.]

A.D. 1860, January 31.—N° 248.

LARMUTH, Alfred Augustus.—" Certain improvements in " ' healds ' employed in looms for weaving." The invention consists in " the manufacture of healds or harness used in weaving " fabrics of continuous round or flattened wire ; if round it must " be flattened at the places where the loops or eyes are to be " made for the warp threads to pass through, the said loops or " eyes being made by perforating the wire at the places so " flattened."

[Printed, 4*d*. No Drawings.]

A.D. 1860, February 1.—N° 260.

AMBLER, Joseph.—" Improvements in looms for weaving."

The patentee says :—" The improvements relate to means or " *apparatus for* weaving fabrics of various or any kind of material

" by two shuttles being thrown or picked across the warp from " each side of the loom alternately, so that the colour or thickness " of the woof or weft can be varied as required. I carry the same " into effect, firstly, by fixing upon the bottom shaft of a loom a " tappet wheel, with two tappets or noses, which tappets or noses " being moveable can be changed, so as to weave the ordinary " plain goods; and by altering the main driving wheels of the " loom in such a proportion that the crank shaft revolves four " times to the bottom shaft once.

" Secondly, by means of a sliding shuttle box, with two or " more compartments or shuttle chambers at each end of the " loom, which compartments or shuttle chambers are raised and " lowered and so alternately placed before the shuttle race by " tappets fixed upon a shaft moving in bearings attached to the " batten, which receives its motion from a catch fixed on the " main framework of the loom acting upon a catch wheel on the " shaft afore-mentioned.

" Thirdly, should either of the different kinds of weft at each " side of the loom break whilst being picked across the warp, " provision is made for stopping the loom by means of a tappet, " with two studs fixed upon the bottom shaft at each side of the " loom, which studs act upon levers connected to the weft levers, " which work in conjunction with the weft forks in the ordinary " manner for throwing off the belt and thus stopping the loom."

[Printed, 1*s.* 10*d.* Drawings.]

A.D. 1860, February 3.—N° 284.

BLACKBURN, THOMAS, and KNOWLES, MARK.—" Improve- " ments in beams for warping, sizing, dressing, and weaving " machines." These improvements consist in " the application " to beams for warping, sizing, dressing, and weaving machines " of a shaft in one piece having a right and left handed screw, " and also of a shaft in two pieces, either both screwed, or one " plain working in connection with nuts and collars for the " purpose of expanding or contracting the beams."

[Printed, 8*d.* Drawing.]

A.D. 1860, February 3.—N° 286.

FIELDEN, ROBERT, *junr.*, and FIELDEN, THOMAS.—*This invention relates to the* manufacture of pickers. The patentees say :—"The first part of our invention consists in the application "and adaptation of certain machinery or apparatus to the purpose "of cutting the material (viz., the hide or skin) into fillets (for "the formation of pickers) or strips or shreds, as may be required. "We fix a knife of a proper construction to a lever turning on a "centre, and a vibratory motion is given to the lever by means "of a cam or eccentric. The material is fed up to the knife by "means of rollers, which are put in motion at intervals by means "of mechanism which gives an intermittent motion to the rollers, "and which motion can be varied so as to produce the fillet or "strip or shred of the width required.

"The second part of our invention consists in the application "and adaptation of certain machinery or apparatus to the purpose "of giving a proper shape or form and consistence to the picker "after the materiels have been combined together in the previous "process of manufacture. We employ, first, certain dies or blocks "of metal of a proper form for giving the shape to the sides of "the picker; when in use these dies or blocks of metal are "psessed towards each other by means of inclined planes, wedges, "screws, levers, cams, or eccentrics, or similar appliances. Second, "we employ a plate or block of metal to press on the top of the "picker, whilst the foot is retained by a smaller plate or block. "A drift or piece of metal of an oblong section being inserted in "the filbow or open part at the top of the picker, and the whole "being placed betwixt the dies and plates before mentioned; "these last are closed forcibly by means of the inclined planes, "cams, or other appliances, and its finished shape is given to the "picker.

"The third part of our invention consists in the application and "adaptation of certain machines or mechanism for the purpose of "punching, cutting, or drilling the apertures required in the "manufacture of pickers."

[Printed, 10*d*. Drawing.]

A.D. 1860, February 4—N° 295.

KERR, ANDREW.—"Improvements in jacquard machines." The patentee says :—"Instead of giving the jacquard cylinder a "rigid or unyielding movement inwards as much as the movement "*outwards as at present* adopted, I employ various modes of "*giving it a yielding* movement inwards in connection with a

" self-acting arrangement for supporting the cylinder or cylinder " batten until the knives of the grife have left the hooks, by " which means there is a great economy in the wear and tear of " the needles, hooks, and cards, inasmuch as the cards do not " press upon the needles when the hooks are upon the knives. " but only when they are free from them."

[Printed, 6d. Drawing.]

A.D. 1860, February 10.—N° 362.

BONNET, BENOIT.—(*Provisional protection only.*)—" Certain " improvements in 'jacquard apparatus' to be employed in " looms for weaving." The patentee says:—" My improvements " consist in the employment of a lighter or more delicately made, " or weaker description of springs in the 'box' than has hitherto " been practicable, and by such improvements I am enabled to " employ 'pattern cards' of a lighter substance and consequently " less costly, whereby considerable economy is effected. The " 'springs' as ordinarily used are short, and merely placed loosely " in the holes or recesses of the 'spring box;' but the improve " 'springs' are made longer and each separately enclosed in a " tube, which fits into the recesses or holes of the 'spring " 'box.' "

[Printed, 4d. No Drawings.]

A.D. 1860, February 11.—N° 371.

NEVILL, WILLIAM, and BARK, CHARLES.—(*Provisional protection only.*)—" Improvements in the manufacture of fleecy web," " especially intended to be used for cleaning the bores of rifle " and other fire-arms, and also large guns or pieces of ordnance. " The material hitherto commonly employed for that purpose " has had a woollen face, which when used with acid, has been " found to curl and fall to pieces, thereby rendering it useless. " Now the object and intention of this invention is to substitute " vegetable fibre instead of animal fibre in the manufacture o " fleecy web, which is not injuriously affected by acid, and is " therefore well adapted for cleaning fire-arms and guns, as above " stated. The vegetable fibre may be manufactured with a " woollen or other back in the manner usually practised of " manufacturing fleecy web."

[Printed, 4d. No Drawings.]

A.D. 1860, February 13.—N° 395.

HOWARD, Lewis John Thomas, and HOWARD, Lewis.—"Improvements in the fabric or material used for bolting or sifting "flour and other matters." The patentees say:—"We prepare "the fabric or material for bolting cloths by weaving it of glazed "cotton thread. These cloths are woven of a cylindrical form, and "in order to prevent them rending, we dispose a combination of "threads together, or it may be a stronger thread at distances o "about an inch apart both in the warp and weft, which prevents "the cloth splitting beyond those points. The cloth when woven "we subject to a dressing operation, using a solution of gum and "turmeric, which fixes the thread of the fabric. For other sifting "purposes we weave the cloth of the same material, either in the "form of the articles for which it is to be used, or they may be "cut from a fabric so formed and applied to the sieves or sifters. "We also dress the fabric with gum as before."

[Printed, 4*d*. No Drawing.]

A.D. 1860, February 15.—N° 416.

BROOMAN, Richard, Archibald.—(*A communication from Bernard Landwerlin and Theodore Dopff.*)—(*Provisional protection only.*)—"The object of this invention is the manufacture of stuffs "such as carpets, hangings, curtains, draperies, and the like with "the pattern on both sides, or with the pattern on one side only "and a back, and the invention is carried into effect by the "employment of two machines, a chenille machine and a loom."

[Printed, 4*d*. No Drawings.]

A.D. 1860, February 15.—N° 417.

BONELLI, Gaetano.—The patentee says:—"My invention "of improvements in machinery for weaving figured fabrics, "relates to a novel construction and arrangement of mechanism "whereby I am enabled to dispense with the use of jacquard "cards, and of all the apparatus or operations required for the "reading and preparing of these cards from an original pattern "or design. For this purpose instead of these cards a single "plate of the same dimensions as one of these cards is employed. "*The plate has* openings or perforations made in it corre-"*sponding in number* to the horizontal needles of the jacquard

" apparatus. These openings or perforations are stopped or " closed when required by means of small iron rods, which are " drawn forward at suitable times by means of electro-magnets, " but when these small rods are not drawn by the electro-magnets " the openings or perforations in the plate will be left open. " The insulated wires of the coils of the electro-magnets are " connected respectively to one of a series of thin metallic plates " which come in contact with the pattern, the said pattern being " for that purpose painted or drawn upon a flexible metallic " sheet with an insulating varnish, or the design may be composed of a sheet metal pattern fixed upon an insulating layer " or surface. In order to prevent induction I wind the insulated wire of the coils of neighbouring electro-magnets in " opposite directions, and arrange the magnets in such a manner " that the positive pole of one magnet shall be next to the " negative pole of its neighbour."

[Printed, 8*d* Drawing.]

A.D. 1860, February 16.—N° 428.

WIDNELL, Henry.—" This invention has for its object improvements in the manufacture of embossed cut pile fabrics, " and consists in combining the process of embossing with that " description of cut pile fabrics wherein printed or parti-colored " yarns are used for producing the ornamental patterns of such " fabrics, and the process of embossing such cut pile fabrics is so " conducted as to leave, or for the most part to leave, the printed " ornamental cut pile portions or parts of the face of a fabric in " relief or unembossed, whilst the surrounding or contiguous " ground of the face of the fabric or parts thereof is or are " embossed or pressed below the ornamental parts of the face of " the fabric in each case."

[Printed, 4*d*. No Drawings.]

A.D. 1860, February 17.—N° 432.

HUDSON, William, and CATLOW, Christopher.—(*Provisional protection only.*)—These " improvements in power " looms " consist, firstly, in a " method of causing the loom to " stop whenever the shuttle fails to complete its traverse." " This is *effected by the* use of an instrument resembling a " *comb, the teeth of which* project into the angle of the shed,

" but as the sley approaches the beat-up, are made to fall towards " the reed in consequence of part of the comb encountering a " finger or arm attached to another part of the apparatus. If, " however, the shuttle be detained in the shed at the time when " these parts come in contact, the teeth of the comb are thereby " hindered from falling towards the reed, and the before-mentioned " finger or arm is thereupon made to recoil and to place the " apparatus connected with it in the position proper for arresting " the further motion of the loom."

Secondly, in another stop motion. In this case the patentees " use a spring reed, which yields a little to the pressure upon the " shuttle in the event of the latter being driven up into the angle " of the shed. In so yielding the reed presses against and " vibrates a lever arm, thereby slightly elevating another lever " arm projecting forward from the same fulcrum. By this " elevation the end of the last-mentioned lever arm is brought " opposite to a projection from a finger or arm attached to a " part of the apparatus employed to effect the actual stoppage."

Thirdly, the improvements relate to shedding apparatus, and consist in "placing the fulcrum or fulcra of the treadles between " the tappets and the lamm rods, and in making the treadle " bowls to rest upon the tappets instead of being presented under " them."

Fourthly, in another shedding apparatus. In this "arrange- " ment the treddles are not moved immediately by the tappets, " but are connected by links to other levers moved thereby, and " pivoted on a stud at the back of the loom. By altering the " points of connection of the links with their respective treadles " and levers, the depths of the sheds formed can be varied at " discretion."

[Printed, 4*d*. No Drawings.]

A.D. 1860, February 17.—N° 443.

HENRY, JOHN.—(*Provisional protection only.*)—These "im- " provements in the manufacture of flounced dresses consist, " first, in weaving the flounces with one, two, three, or more " cords in the top part of the flounce, whereby it may be drawn " or gathered up, and the fulness easily distributed and in " *readiness for fixing* on the dress."

"*The second improvement* consists in weaving a hem on the lower edge of the flounce instead of producing such hem by sewing, as heretofore."

[Printed, 4*d.* No Drawings.]

A.D. 1860, February 20.—N° 461.

MART, Frederick William.—" Improvements in the manu-" facture of mops and 'sponges' for cleaning cannon."

" For these purposes it is preferred to employ vegetable fibres " woven and made up as hereafter explained; at the same time " wool or other animal fibre may be similarly woven and made up " into mops or sponges. The back of the fabric is, when vegetable " fibre is employed, by preference of strong yarns of flax or hemp, " which yarns compose the warp of the woven back fabric, it " being wefted by similar yarns. And on the face of such fabric, " intermediate of the two ends of a piece which is to be used in " making a mop or sponge, a strong cut pile is produced, by pre-" ference of strong fibres of hemp," " in like manner to that in " which piled rugs and mats have heretofore been produced." " The two edges or selvages of the fabric are sewed together so as " to form it into a tube, the pile being outwards; and one project-" ing end of this back fabric is folded over and sewed, so as to " receive a draw string or cord; and the other projecting portion " of the weaving is folded in at the end, so as to close it. The " head or end of the stave or handle is introduced into the tube, " and then the draw string or cord is drawn tightly, so as to close " that end securely on to the stave or handle just beyond the " larger end or head."

[Printed, 6*d.* Drawing.]

A.D. 1860, February 21.—N° 471.

KEIGHLEY, Sugden.—(*Provisional protection refused.*)—This " invention relates to the employment of jute in combination " with sheep's wool, alpaca, or mohair, in the manufacture of " moreens, grograms, skirtings, and cotillions."

[Printed, 4*d.* No Drawings.]

A.D. 1860, February 22.—N° 481.

LOVELIDGE, Thomas.—This invention relates to " self-acting " apparatus for *letting off* the warp and maintaining it at a " *uniform tension during* the process of weaving."

The warp is let off the warp beam by means of an escapement wheel and pallet lever, and the time for so letting off the warp is determined by the action of a "pressure bar" acting on it between two rollers. The "pressure bar" and rollers also serve to maintain the warp at a uniform tension.

[Printed, 8*d*. Drawing.]

A.D. 1860, February 23.—N° 494.

PEGG, John.—" Improvements in battens employed in weaving."

The patentee makes " the battens or lays in two or more parts, " capable of being moved towards and from each other in a " longitudinal direction by cams or racks and pinions or both, " or by any other suitable motions. While the moveable parts " are approaching each other, the shuttles are carried forward " between the warp threads by the rack and pinion motion, and " when the movable parts are at the end of their travel, the " shuttles are carried through the remaining portion by the " continued operation of the rack and pinion motion, passing " from one movable part to the others; the space across which " the shuttles are so thrown is thus much diminished."

[Printed, 10*d*. Drawing.]

A.D. 1860, February 25.—N° 517.

DEAN, William, and PEACH, Charles.—(*Provisional protection only.*)—" Improvements in the manufacture of wreaths or " trimmings for ladies' bonnets and other articles of dress." The patentee say:—"In manufacturing wreaths or trimmings, according " to this invention, we place in the ordinary ribbon loom a " certain number of threads forming a narrow warp, and in these " threads are placed two fine brass wires running parallel there- " with. We then proceed to weave the same with a silk or other " weft in a similar manner to ordinary ribbon weaving, the weft " being carried in a common shuttle, the only difference being " that in this instance the article produced has only a narrow strip " of warp threads in the centre, and on each side the weft forms a " long open loop, in fact somewhat in the form of a double-looped " fringe. To determine the width of these loops from the centre " we place two strong threads or wires, one on each side of the " warp, at a certain distance therefrom, and the weft thread from " *the shuttle passing* round the same is thus kept at any required " *width.*

"When this process is completed to any desired length, the " material is then taken from the loom, and by means of the two " fine wires the whole is twisted together so as to form a circular " looped wreath or trimming."

[Printed, 4d. No Drawings.]

A.D. 1860, February 27.—Nº 535.

COOLEY, Robert Barlow.—"Improvements in the manu- " facture of plain or ornamental woven or looped fabrics, from " certain descriptions of yarn, and for the application of such " fabrics to the making of various articles of dress, and for other " uses, such as hats, caps, gloves, hosiery, lace shawls, mantle " and other cloths, curtains, table, umbrella, and other covers, " such fabrics being made with or without terry plush or cut pile " surfaces." The patentee claims "the application of yarns spun " from mixtures of silk with particular kinds of wool, hair, or " down to the manufacture of fabrics suitable for various pur- " poses."

The yarns he employs "are spun from mixtures of silk mixed " (in the preparing, carding, and combing processes, which are " well known and practised in the preparing of other fibres for " spinning) with the fur or hair of the beaver, the vicugna or " vicuña, the musquash, or with other similar descriptions of fine " fur, hair, or down."

[Printed, 4d. No Drawings.]

A.D. 1860, February 28.—No. 550.

PARISH, Cornelius, and LANG, Joseph. — (*Provisional protection only.*)—"This invention relates to an improved mode " or modes of working the healds of looms whereby the treadles " and tappets, wheels and racks, and great guard are dispensed " with."

"According to one arrangement it is proposed to work the " healds by means of a strap or band passed round and secured " to a pulley fast on a shaft beneath the healds, and parallel " thereto. This band is also passed over a pulley on a shaft above " the healds, which are maintained at a proper distance apart by " means of an adjustable stay provided with two rollers or pulleys, " and situated about midway between the actuating pulley and " the healds. A slotted lever arm is secured to the end of the

" heald shaft, which is connected by means of a rod with a second " slotted arm fast on and revolving with the tappet shaft. As " the tappet shaft revolves it imparts a reciprocating motion to " the heald shaft and pulley, and consequently causes the healds " to rise and fall alternately. The slots in the levers afford facility " for adjusting or regulating the movement of the healds.

"According to another arrangement the healds are worked from " a pulley fast on a shaft at right angles to the healds, this " shaft being provided with a pair of cross arms extending horizontally from each side of the shaft, and provided with anti-friction rollers. Above these rollers work two tappets or wipers " fast on the tappet shaft, which, as they rotate, alternately act " upon each of the arms, and so impart a reciprocating motion to " the shaft and heald actuating pulley, which motion is transmitted by means of an endless band to the healds."

[Printed, 4*d*. No Drawings.]

A.D. 1860, February 29.—N° 554.

HARGREAVES, BENJAMIN, and HEATON, JAMES.—(*Provisional protection only.*)—" Certain improvements in looms for " weaving." The patentees say :—" The first part of our invention " consists in an improved mode of communicating motion from " the crank shaft to the lay or batten. The crank arms or connecting links are jointed at one end to the crank shaft as usual, " and the other end of each link is jointed to a stud projecting " from an arm on a cross shaft supported in bearings fixed to the " lay swords. The point of connection of the arms and the links " is either rather above or below a line drawn from the crank on " the crank shaft to the stud on the arm of the cross shaft, and a " spring is applied to keep the links firm when the reed beats up " the weft. When the loom is at work, and the shuttle fails to " box, the ordinary stop rod acting on a crank on the cross shaft " causes the said cross shaft to swivel partly round, thereby " bringing a stop against a stationary frog, and allowing the crank " shaft to complete its revolution without bringing the reed " against the shuttle, and without injury to the various parts of the " loom or to the warp.

" Another part of our invention consists in causing the warp to " pass over a roller to which a positive rotary motion is given from " *the taking-up roller*; the warp is held fast between this roller " *and a weighted top* roller, so that when the loom is at work the

" requisite amount of warp is unwound off the warp beam by the " said rollers; by this means the weights usually applied to the " warp beams are dispensed with."

[Printed, 4d. No Drawings.]

A.D. 1860, March 2—N° 584.

LEWIS, Joseph William.—" Improvements in looms for " weaving ribbons." The patentee says:—" The object of my " improvements in looms for weaving ribbons is the saving of " labour in the production of what are known in the trade as " double-labored ribbons, that is, ribbons of two or more colors. " I employ two or more shuttles, and for each shuttle an opening " in the warp, through which the shoot is thrown. This would " produce narrow ribbons of different colours, and to obtain the " bind between these colours, I employ at the back of the usual " frame of leashes, which are tied or arranged in varying heights, " so as to obtain more than one opening in the warp, a shaft or " shafts carrying a separate group of leashes. These take in " alternate throws into the lower and upper leashes of the ordinary " group, thus binding two shoots of colours together.

" In the production of figured fabrics I employ the jacquard " machine in conjunction with my improvements in looms."

[Printed, 10*d.* Drawings.]

A.D. 1860, March 5.—N° 597.

SIDEBOTTOM, John.—" Certain improvements in looms for " weaving." " In looms of the ordinary construction it is cus- " tomary to apply the 'swell' to the back of the shuttle box." This " invention consists in applying the swell above or below the " shuttle."

[Printed, 10*d.* Drawings.]

A.D. 1860, March 6.—N° 609.

LEEMING, John.—(*Provisional protection only.*)—" This in- " vention relates to looms wherein change shuttle boxes are " employed, and consists, firstly, in a new and improved method " of withdrawing the picker to the end of the spindle of the box " quickly." " To the end of the picker is attached a cord or strap " of any suitable material, which passes over a pulley or bowl on " *a stud affixed to the hand*-rail or other convenient part of the

" loom, and thence to the picking stick, to which it is made fast, " so that as the picking stick returns from the act of propelling " the shuttle, the cord or strap is at once acted upon by the " picking stick, and draws the picker quickly back to the end of " the spindle."

" Secondly, in a new and improved method of preventing the " weft threads of different shuttles from interfering with the " action of the weft fork. To the lay of the loom or sword thereof " is affixed a plate, in which an upright sliding bar, with a fork " attached thereto, strides or spans the ordinary weft fork, and " which either lifts the weft above the race of the shuttle, or " lowers it into the recess formed in the bottom of the lay, " according as the bar and fork are acted upon by a lever working " on a stud made fast to the said plate in which the fork slides, " or to the frame of the oscillating box, and which said lever " derives its motion from the finger attached to the shaft or axis " of oscillation, by which motion the said fork is made to perform " the before-mentioned act, and so attains the desired object."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 10.—N° 648.

LUIS, Jozé. —(*A communication from Philippe Joseph Galvaire.*)—(*Provisional protection only.*)—"This new mechanical " damask loom is intended to figure mechanically on all tissues, " branches, flowers, bunches of flowers, and other designs detached, " or even nearly continued, of all sizes, and in all shades. By " its means the workman is not required to warp or disjoint the " shuttles in order to vary the colours. The cutting out is also " unnecessary. It can be made of wood, iron, or copper, and " consists,—

" 1st, of a frame in which the shuttle boxes, the drives, and the " shuttles themselves are placed.

" 2nd, of a cogged lever and crank, for the purpose of raising " the dampers; a spring facilitates this movement.

" 3rd, of dampers, which cause the shuttles to enter their boxes " and hold them there.

" 4th, of boxes in which the shuttles are placed, the number of " boxes may vary according to the size of the tissue. Each box is " divided in compartments according to the number of shuttles to " be employed.

" 5th, of drivers, serving to propel the shuttles.
" 6th, of a board which keeps the threads asunder. The frame
" rises by means of a picker or rolls."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 10.—N° 655.

PILLING, John.—(*Provisional protection only.*)—" Improvements in brakes or apparatus for stopping looms when the " shuttle is caught in the warp, which is applicable to all looms " with a break applied to them." The patentee says :—" I apply " the break by means of a lever, and in connection with that " lever I place a connecting rod, which is elastic; by thus applying " the power of the break through an elastic medium the concussion " by the application of the break is less severe than in breaks " having no such arrangements; I also bring the stop tongue rod " in or nearly in a line with the crank arm, which prevents the " straining of the lathe."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 15.— N° 689.

SHIELDS, John, and SHIELDS, Alexander.—" This invention relates to various arrangements of jacquard looms," " and it " bears importantly upon an invention of ' improvements in " jacquard looms or machinery for weaving ' for which Mr. John " Shields made application for British Letters Patent on or about " the Fifth day of October One thousand eight hundred and " fifty-nine. The present improvements may or may not be " worked in conjunction with those set forth in the Provisional " Specification of the invention herein-before referred to; but " when so combined for operation in ornamental weaving, they " consist essentially in giving the branders a horizontal transverse " motion to and fro in addition to the ordinary ascending and " descending motion as employed for raising the jacquard wires " or needles. This horizontal motion is effected by a differentially " formed cam or working barrel, which is caused to rotate in " concert with the ordinary jacquard barrel, and at any desired " speed in proportion to the speed of such barrel."

[Printed, 10d. Drawing.]

A.D. 1860, March 16.—N° 697.

HUDSON, William, and CATLOW, Christopher.—"Certain improvements in power looms." The invention consists, firstly, in apparatus for stopping the loom when the shuttle is caught in the shed. The patentees use "an instrument resembling "a comb, the teeth or dents of which pointing upwards penetrate "the shed from below, but are depressed or caused to incline "towards the reed as the sley is beating up by the contact of part "of the comb with a finger or arm attached to the stopping "motion. If, however, the shuttle be detained in the shed, the "comb is thereby hindered from falling towards the reed, and "the finger or arm instead of depressing the comb is compelled "to recoil, and thereby to bring into action the stopping "motion."

Secondly, in "another means or apparatus for the same pur-"pose." In this case the patentees "use a spring reed, which "yields a little to the pressure upon the shuttle in the event of "the latter being driven up into the angle of the shed. In so "yielding, the reed presses back a lever arm, which in its turn "slightly elevates another lever arm projecting from the same "fulcrum as the former. By this elevation the lever arm secondly "mentioned is brought into the position for acting upon the "stopping motion."

Thirdly, in suspending "the treddles from a pulley or wheel, "so that the healds may be relieved from the weight thereof."

Fourthly, "in placing the fulcrum or fulcra of the treadles "between the tappets and the lamm rods, and in making the "treadle bowls to rest upon the tappets."

Fifthly, in "the working of the healds by means of a treddle "or treddles not in immediate contact with the tappet or tappets, "but connected to a lever or levers acted upon by the said tappet "or tappets in such a manner that the relative lengths of the "respective lever arms can be varied at discretion for the purpose "of regulating the depth of the shed."

Sixthly, "in deriving the shedding movements of the healds "from the vibrations or reciprocating motion of a treadle, lever, "or rod, actuated by an eccentric cam or tappet, which by its "*revolution* imparts motion thereto in alternate directions."

[Printed, 1s. 4d. Drawings.]

A.D. 1860, March 17.—Nº 708.

BROOMAN, Richard, Archibald.—(*A communication from Jean Victor Alfred Ruzé.*)—(*Provisional protection only.*)—"The " objects of this invention are to furnish the main beam of a " loom with a greater breadth of dressed warp than heretofore, " and to improve the dressing process by means of additional " heating and drying apparatuses.

"In order to accomplish the first of these objects the inventor " forms the main beam in two similar parts, both of which fit " upon and are carried by a square iron shaft or any other form " of shaft on which they may be relatively fixed so as not to " move independently. Upon these two parts of the main beam " the warp is wound in two divisions, but with precisely the " same tension on each, and each distributed by a reed in precisely " the same manner, so that the whole may practically be treated " when in the loom as a single uniform warp. The uniform " tension and distribution of the warp on the two half beams is " secured by mounting each half beam in the dressing machine " in precisely the same manner, but on opposite sides of a set of " geared or friction wheels, so that both the tension and the " length of warp on each must, of necessity, be the same. Each " half of the warp is dressed and dried by similar arrangements " of apparatus at either half of the dressing machine, and passes " through similar reeds on its approach to the half beam.

"In drying warps of wool the inventor applies supplementary " drying tubes of copper filled with steam and placed between " the warp threads, some of which are carried over and some " under the said tubes but not in contact with them. He also " applies a second fan or ventilator below the said tubes."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 19.—Nº 716.

GOLDIE, Thomas.—(*Provisional protection only.*)—"This in" vention relates to certain improvements in the arrangement and " construction of or additions to power looms for obtaining a " differential or intermittent action of the pace weight, so that more " or less strain may be thrown upon the warp at intervals to suit " the exigencies of the weaving." "This object is accomplished " under one modification by means of a mechanical arrangement, " which is actuated by the shedding motion of the loom. A

" horizontal lever is fitted in the lower part of the loom; this " lever is centred on a stud carried on a fixed part of the framing, " and it extends from the heddle movement to the back part of the " loom. The front end of the lever carries a pendent catch piece, " into the notch of which a laterally projecting pin on the heddle " movement takes when the heddles are brought into operation. " The backward end of the lever is connected to a rod extending " parallel with the warp beam; the movement of the lever causes " this rod to come into contact with a pendent catch, which " while thus engaged causes the pace weight to exert its full " effect on the warp. The free end of the pace lever is connected " to this movement by means of a helical spring and a leather " strap, by tightening which more or less tension may be thrown " on the warp."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 20.—N° 721.

WILLIAMSON, John, and WILLIAMSON, Francis.—"Im- " provements in looms for weaving."

"The improvements relate to means for applying certain loose " rods to connect the treadles (which are worked upon regularly " by the tappets of the tappet shaft) with the top levers, which " work the healds in regular succession, which loose rods being " alternately connected and disconnected with the afore-mentioned " treadles will cause the loom to weave any kind and combination " of twill and plain, respectively or combinedly."

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1860, March 20.—N° 723.

ASPELL, James, BOOTH, Edward, and HURST, James.— This invention " relates to that portion of the power loom known " as the taking-up motion," and "is designed for the purpose " of regulating the taking up of the cloth as the cloth upon the " roller or beam increases in diameter." "The cloth roller or " beam is driven from the 'swing shaft' by means of a friction " plate or toothed wheel, which imparts motion to a frictional " bowl or pinion, which turns or drives the cloth beam by an " intermediate worm and worm wheel, or other convenient " gearing. A small roller is placed contiguous to the periphery

" of the beam of cloth, which roller is in connection at one end " with a lever, the opposite end of such lever being attached to a " rod bearing upon a frictional bowl or pinion, so that as the " diameter of the cloth upon the beam increases, the said bowl " is depressed or forced nearer to the centre of the driving friction " plate or toothed wheel, and consequently there being a less " driving surface, the speed of the cloth beam is gradually " diminished as required."

In the Provisional Specification a letting-off motion is described which is disclaimed in the Complete Specification. The principle of the letting-off motion is to diminish the friction as the yarn beam decreases in size.

[Printed, 10*d*. Drawing.]

A.D. 1860, March 23.—N° 755.

ASHWORTH, CHARLES.—This "invention relates more par" ticularly to such looms as are employed for weaving a certain " description of fabric known as 'Turkish towelling,' which " fabric has a looped or terry surface, but it is also applicable to " other looms wherein two or more different descriptions of " fabric are required to be woven at intervals in the same piece.

"The invention is particularly designed for weaving a border " or 'tab' at each end of the 'towelling' of a different description " to the general fabric of the piece, of an ornamental character, " as a 'satteen' stripe, for example. The improvement consists " in the employment and use of a cylinder, cylinders, or barrels, " having a double set or more of pegs, tappets, bowls, or pro" jections upon the periphery, one set of which actuate the healds " by ordinary mechanism for weaving the 'terry' part of the " fabric, and the other actuate healds for weaving the 'satteen' " stripe or other ornamental border at the end of each towel. " The different healds are capable of control, and are actuated at " will by supporting the said cylinder or barrel in bearings, so that " it may be moved laterally or transversely by a handle, so as throw " one set of pegs out of gear with one set of healds, and the other " set in gear; or if preferred, two or more peg rollers or cylinders " may be employed, each acting upon a set of healds, and sliding " in and out of gear as the cylinders furnished with a double " row of pegs."

[Printed, 10d. Drawing.]

A.D. 1860, March 23.—Nº 758.

NEWTON, WILLIAM EDWARD.—(*A communication from Silas C. Salisbury.*)—" In the improved loom which forms the subject " of the present invention the weft thread is passed through the " shed by means of a shuttle of peculiar construction, and which " is supported in the shed by a band or strap extending from " side to side across the machine. Beneath this band there is a " reciprocating carriage which runs on horizontal guides, and is " provided with two uprights, having rollers at their upper ends, " on which the shuttle and its band rests. The reciprocating " carriage is attached to an endless band or strap that extends across " the machine and passes round two pullies or drums at each side. " Motion is given to the band and carriage by communicating " rotary motion to one of these pullies or drums, or by means of " levers and cams actuated by suitable gearing connected with the " driving shaft or other convenient and working part of the loom. " The warp threads that form the shed pass from the warp " beam over or between feed rollers, and from thence through " a stationary reed or comb, whereby the threads are kept at " proper distances apart. The headles to form the shed are of " the ordinary construction, and are worked up and down by cams " and levers as is usual in this kind of machinery, or sometimes " the harness may be divided into sections and raised or depressed " (as the shuttle passes in) by means of a reciprocating bar with " cam-shaped heads, which as it advances acts against bowles " adapted to the sections of harness, and raises or lowers them as " may be required to form the shed." " The shuttle is formed " of a wedge shape, and is provided with two rotating discs or " wheels, which are mounted on an arm extended from the side of " the shuttle. These discs are set at an angle to each other, and " are so aranged that the thin edges of these discs are brought to " the same plane, thereby forming, as seen from behind, the thin " end of a wedge, of which the back part of the shuttle forms the " thick or wide end." "The weft is pushed home by the rotating " discs, and is secured by the crossing of the warp threads in the " formation of the next shed. The shuttle is provided with " rollers to facilitate its passage through the shed, through which " it is passed either by the contrivance or mechanical arrangement " above mentioned, or by the intervention of air tubes, electricity, " magnetism, or other suitable means."

[Printed, 1s. 8d. Drawings.]

A.D. 1860, March 23.—N° 759.

COOPER, Benjamin.—"This invention of improvements in sizing and drying yarns preparatory to weaving, relates more particularly to the preparing of woollen yarns for weaving, but may also be employed for the preparation of other yarns."

"The invention consists in sizing and preparing the yarns in the quill, spool, bobbin, or nap, or as the yarn comes from the spinning machine, thereby obviating the necessity of winding reeling, or hanking the yarn as is now generally the case."

[Printed, 1s. Drawing.]

A.D. 1860, March 28.—N° 802.

LEONARD, James. — (*A communication from Carl Heinrich Zimmermann.*)—"This invention has for its object improvements in apparatus used when weaving, and is applicable when weaving fabrics where chenille weft is employed." "In place of employing ordinary heddles," "a peculiar arrangement of apparatus is employed. This arrangement of apparatus consists of a series of circular discs formed with teeth around their periphery, each of which discs is supported by a suitable frame; in each disc two holes are formed for the passage of two of the warp threads or yarns, the two holes being equidistant from the centre of the disc. The frames which support the discs are formed in such manner that the discs may readily rotate therein. For this purpose each frame is formed with a slot in it which is open at its upper end; the lower end of the slot is of a semicircular form, and around the edges of the slot a groove is formed of a width corresponding with the toothed edge of the disc, the toothed edge being thinner than the central portion of the disc. The exterior form of each frame is rectangular, and there are two holes formed through it, one near each of the lower angles. A series of the frames are connected together by two screw rods being passed through the holes in the frames, and such frames are secured together on the screw rods by screw nuts. In order to open sheds to receive the chenille or other weft, the series of discs thus combined to their frames are simultaneously caused to make a partial rotary motion, and thus change the positions of the two halves of the warp threads or yarns carried by the several discs. This partial rotary motion is given to the discs by means

" a grooved roller, the grooves of which take into the teeth of the " discs."

[Printed, 6*d*. Drawing.]

A.D. 1860, March 29.—N° 812.

COOPER, BENJAMIN.—(*Provisional protection only.*)—" Improvements in warping and beaming yarns preparatory to " weaving." After being sized and dried or prepared for warping " and beaming," " instead of winding the yarns on to the beam " they are wound on to collars made of metal or other suitable " material, and which are capable of being lengthened or shortened " according to the number of threads required to be wound thereon " within a given width or space. These collars are provided with " side flanges of suitable depth, and made in such a manner as to " be capable of being slidden on to the warp beam one after " another so as to combine any required number of collars on one " beam, according to the intended width of the cloth to be woven. " In order to prevent the collars from turning on the beam inde" pendently of each other, they are provided internally with teeth " or studs which fit in a longitudinal groove made from end to " end of the warp beam."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 29.—N° 818.

BUCHANAN, JAMES.—This invention relates to improvements in the manufacture of heddles, for which Letters Patent were granted to Berrie and Anderson March 25th, 1835, and to the present patentee May 14th, 1855, and June 12th, 1857. " In the " present arrangement of the heddle knitting machine, the " mechanism connected with the traversing movements of the " needles is greatly simplified. The improved needle box is by " preference made of malleable cast iron, and in the front end of " the box there is an aperture to admit of the needle passing " through it. To the backward end of each holder or near thereto " a link is attached which connects the holder to a vertical rod " to which a vertical reciprocating movement is imparted by means " of a cam or crank or other suitable and convenient movement " fitted to a horizontal shaft, or by connecting the two holders, one " link is sufficient. The upward movement of the vertical rod " causes the link which actuates the needle holder or holders to

" be run back, whilst its downward action draws the needle or " needles forward. To provide for the shifting up or down of the " lower needle, an improved holder is or may be used. In thi " holder a series of three or other number of holders are arranged, " and in one or the other of these holes a needle is fixed so as to " be worked according to the requirements of the manufacture. " To provide for the varying width of heddles required for different " kinds of weaving, the upper needle box is shifted from one to " another of a series of holes made in the standards which support " the upper needle box and its connected mechanism."

" An arrangement for driving the lap cord bobbins so as to admit " of varying their distance asunder according to the width of the " heddles, consists of a rectangular plate which is centred upon " a stud carried by the framing of the machine. This plate carries " a wheel at its upper and lower ends, so that by turning the " plate upon its centre, these wheels may be brought into gear " with the pinions on the lap cord holders at varying distances " asunder of the pinions. Another necessary arrangement which " also provides for varying the depth of the heddle is obtained by " raising the cylinder or drum and lowering the lower circle on " which the rib cords are wound; or a pair of smaller cylinders " or rollers may take up and deliver each rib cord just as one " cylinder would do in the old plan."

In the Specification, dated June 12th, 1857, an arrangement for "marking is effected by means of a ratchet wheel." "In order " to ensure close attention on the part of the worker, and to oblige " her to keep count with the movements of the machine, in the " present invention the reversing of the ratchet wheel is effected " by means of a hand lever arranged to reverse the movement of " the ratchet wheel upon being depressed by the hand of the " worker."

"The next part of this invention consists of improvements in " coating or covering the heddles with paste, varnish, or other " composition. Under one arrangement the heddles are distended " horizontally by mechanical means, the coating composition being " spread over the heddles at one end by means of suitable rollers " which are hollow, and heated by steam or other heating agent. " This coating composition is brushed into the heddles, and the " fibres thereof are laid smooth by means of rotatory brushes, which " are caused to traverse *to* and fro and endlong over the heddles. " *Or, in lieu of this arrangement*, the heddles may be caused to "traverse to and fro, the smoothing and distributing brushes "having both a rotatory and a traversing motion imparted to "them."

[Printed, 2*s.* Drawings.]

A.D. 1860, April 3.—N° 852.

AMBLER, Joseph.—(*Provisional protection only.*)—"This invention consists of certain new mechanical arrangements, "designed for taking any number of picks from either side of a "loom," "and further of mechanical arrangements for operating "upon the weft fork of the loom, and likewise for skipping one "shuttle in the shuttle box when any particular color of weft "is not required to be introduced in the pattern to be woven."

"First, as regards the mechanism above mentioned for taking "any number of picks. It is composed of a sliding cone attached "to a lever fixed to the side of the loom, said comb being raised "by the crank of the loom shaft, and lowered by means of a cord "or wire in connection with a jacquard or other pattern machine." "The mechanism for operating upon the weft fork consists of a "jointed lever connected by a cord or wire with a jacquard or "other pattern machine. There is also another jointed lever "fixed to the hind rail of the loom, and attached to the other "end of this lever is an upright rod, working through a socket "or boss fixed to the side of the loom, and at the top of the said "rod there is a fork to take the weft out of the way of the "ordinary weft fork. This last-mentioned lever is also operated "upon by a jacquard or other machine to which it is connected "by a cord or wire." The mechanism employed "for skipping "a shuttle in rotary shuttle boxes consists of a double excentric."

[Printed, 4*d.* No Drawings.]

A.D. 1860, April 4.—N° 861.

INGRAM, Thomas.— This invention relates to a method of supplying a loom with weft without stopping to change the bobbin or cop. The shuttle is made hollow to receive a moveable cop case, which is held temporarily in it by "spring stop pieces." A series of these cop cases are arranged in a hopper; and when a fresh supply of weft is required, the ordinary weft stop motion, instead of stopping the loom, brings into action a lever or "propeller" which forces a fresh cop case into the shuttle, at the same time driving the other case out.

[Printed, 10d. Drawing.]

A.D. 1860, April 5.—N° 864.

MALLINSON, GEORGE.—The object of this invention "is to "produce fabrics having a pile surface of mohair, alpaca, or other "costly material with a back and foundation of cotton or other "cheap material."

[Printed, 6*d*. Drawing.]

A.D. 1860, April 9.—N° 892.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Louis Nicolas Guillaume Dupont.*)—(*Provisional protection only.*) —"The new fabric which forms the subject of the present invention "is intended chiefly to replace strips of cloth used in making "list shoes."

"The fabric made according to this invention is a narrow "woven fabric complete in itself, composed of a number of warp "threads tied or united at intervals by weft threads, and afterwards "fulled or felted like cloth. To manufacture the fabric the "warp threads are divided into a series of groups, each composed "of 4, 6, 8, 10 or 12 threads, more or less; each group is "separated from that or those next to it by a small space. The "groups of warp threads are tied or united at intervals by weft "threads shot across the whole of them by a shuttle, and there "are as many separate fabrics produced as there are groups "of warps. The warps and the weft are of woollen threads, but "different materials may be used. The fabric as it comes from "the loom, and before being separated into as many narrow "widths as intended, is fulled."

[Printed, 4*d*. No Drawings.]

A.D. 1860, April 10.—N° 894.

PEACOCK, JACOB, and GARSTANG, JOHN.—(*Provisional protection only.*)—"Improvements in looms for weaving." The inventors say,—"Our invention relates particularly to the treading "motion, and our object is to dispense with the treddles in "ordinary use, which we accomplish by a frame or apparatus in "the shape of a bent lever. The said frame or apparatus works "on a shaft or bar revolving in bearings on the sides of the loom, "on which shaft or bar are two or more bosses; one of the said "bosses works a *reciprocating* band, chain, or other contrivance,

" the end of the band or chain being attached to a roller on each " extremity of the frame, the necessary tension being regulated " by adjusting screws. The other boss or bosses give the necessary " motion to the healds for making the shed. The first motion of " the said apparatus is obtained by a crank from the tappet shaft " or other suitable means. We also joint a support or vertical " bar to the side of the loom in any convenient position, and " connect it to the said frame or apparatus by pins or pivots " to allow it to move to and fro and keep the reciprocating " motion true."

[Printed, 4*d*. No Drawings.]

A.D. 1860, April 11.—Nº 906.

KERSHAW, JOSEPH.—The patentee says : — "The improve- " ments relate to means or apparatus for giving motion to the " work rollers of looms, and have for their object the obtaining " greater uniformity in the winding on of the work to such rollers " or beams.

" Letters Patent were granted to me, bearing date the 2nd day " of March 1859, Nº 558, in the Specification of which adaptations " of means are shewn and described by which motion is given by " excentrics to connecting rods, connected to lever arrangements, " capable of being varied by the winding-on of the fabric on to " the beam to effect uniformity of the take-up.

" I now find it an improvement to control the motions of such " connecting rod or rods, so as to secure parallelism of action " thereto. For this purpose, in place of the straps from the con- " necting rods employed embracing the respective eccentrics, and " so as to vibrate with them, I form them with openings, slotted " or elongated in a direction at right angles to such connecting " rods, and I guide the rods so that the parallelism is maintained, " and the exact motions given by the eccentrics or other moving " means is communicated to the levers operated by them."

" These improvements are also adapted to means for operating " the let-off motion of looms, as also to other arrangements for " winding on to work beams or letting off from warp rollers when " eccentrics or such like operating means are employed to act " upon leverage to insure uniformity of action thereto."

[Printed, 10d. Drawings.]

A.D. 1860, April 13.—N° 926.

MITCHELL, ABRAHAM, MITCHELL, JOSEPH, and EMMERSON, BENJAMIN.—This invention relates to looms with change shuttle boxes. The improvements consist in arrangements for weaving " pick, and pick of different colours; also one, two, or " more picks of one colour, and one, two, or more picks of another " colour, in combination with plain weaving." The patentees " employ two change boxes at each end of the lay or lathe, which " are caused to change simultaneously by means of a griffe lever " attached or applied at one end of the loom, and actuated by a " double tappet affixed on the tappet shaft; two other levers are " attached to the loom, and having rods at one end connecting " with the change boxes, and to the other are attached hooked " rods, which are brought into contact with the griffe lever by " peg lags, jacquards, or other suitable indicating apparatus " for operating the change boxes." They also " apply double " picking noses to the picking wheels, so arranged that both " picking sticks are actuated at the same time. Another lever or " combination of levers and rods are employed and actuated by " the aforesaid griffe lever when brought into contact therewith " by any indicating means for working the stop motion." They " also apply a lever to the loose reed of looms, which, when a " shuttle stops in the shed, actuates a pawl or catch, bringing it " into contact with a ratchet wheel affixed on the crank shaft " of the loom, and thus instantly stopping the motion of the " loom."

[Printed, 10*d*. Drawing.]

A.D. 1860, April 14.—N° 940.

PETRIE, JOHN, junior.—" Improvements in machinery or apparatus for drying warps for weaving." The patentee says:— " In drying warps, I wind them over rails or bars, which are " carried by radial arms or discs mounted upon an axle within a " chamber of any suitable form, and I cause a current of air to " pass through by means of a fan, which acts by exhaustion or by " driving. During this operation the warps are kept stationary, " but the apparatus upon which they are placed is mounted upon " an axle, which may be turned to facilitate the operation of " winding; and the sides of the chamber I construct so that they " may be opened during that operation."

[Printed, 10d. Drawing.]

A.D. 1860, April 17.—N° 966. (* *)

CHEETHAM, Samuel. — "Certain improvements in cop "tubes."

This invention "is principally applicable to cop tubes formed "of metal, but is also applicable when made of paper, papier "mache, or stiffened woven fabric, and consists, first, in forming "an opening or slot in the tube in the direction of its length, so "that when placed upon the 'skewer' in the shuttle for "weaving, the 'skewer spring' may project through such slot "and press upon the interior of the cop to retain it in its proper "position; or, if preferred, such slot may extend from end to "end of the tube for the same object."

"Secondly, the improvement consists in increasing the diameter "of the larger end of the tube, which renders the tube 'trumpet "'mouthed,' or better adapted to the interior form of the cop "than tubes regularly tapered from end to end."

"And thirdly, in providing a fastening or method of attaching "the tube to the shuttle skewer, which may be effected by "means of a pin upon the 'skewer,' which will enter into a hole "in a projection upon the larger end of the tube; or the pin may "be upon the projection of the tube and the hole in the "skewer."

[Printed, 6*d*. Drawing]

A.D. 1860, April 18.—N° 971.

SHAW, John, and COOK, John.—"Improvements in looms." The patentees say:—"Instead of the ordinary method of lifting "the treddles we work them by a pulley and strap, and thus take "off the weight of the treddles from the healds; and, instead of "the usual letting-off motion, we place a rod across the yarn "supported by two brackets; the centre of the said rod is con"nected with the crank shaft by means of an eccentric, a second "rod being attached to the aforesaid rod by which it is worked, "pulling the yarn off the beam, and easing the strain on the yarn "at the same time."

[Printed, 10*d*. Drawing.]

A.D. 1860, April 20.—N° 992.

***RIDINGS,* William Collinson.** — (*Provisional protection only.*)—"*Improvements* in machinery or apparatus for reading

" and repeating designs, for perforating cards or paper for jacquard " weaving." The patentee says,—" I use a reading machine of " the ordinary construction, but dispense with the punch box, " plates, punches, and needles. I pass the cords through two " pulley boxes, and weight them with lingoes between the two " boxes. At one end of the reading machine the cords pass " through a hole in straight wires placed in rows horizontally, in " a bevil rack, the ends of the wires being by means of cords " attached to the punches of the repeating machine. They pass " through a third pulley box and when the card or paper is " required to be cut, the cords of the reading machine are pressed " onwards, and the straight wires raise the punches that are not " required to perforate; this motion being exactly contrary to the " method of pressing the cord from the reading machines now in " use.

" My repeating machine is also similar to those already known, " but is attached to the reading machine and constructed so as to " force the jacquard hooks upon the grife where the card or paper " is blank. This machinery or apparatus differs from those now " in use, so far that the cords of the reading machine are pressed " inwards instead of outwards to move the punches, and in the " repeating machine the punches which are not to perforate are " raised, the stationary punches being placed in a vertical position " in plates and secured by a comb or bar of metal, whilst the " plates are moved upwards by the motion of an eccentric placed " on horizontal shafts, the card or paper being perforated by one " turn of a fly wheel. The two machines may be worked either " separately or conjointly as may be desired."

[Printed, 4d. No Drawings.]

A.D. 1860, April 25.—Nº 1038.

MASON, James, the younger.—" Improvements in looms for " weaving." " This invention relates to an apparatus for taking " off the pressure of the springs from the ' swell ' in the shuttle " box at the time the shuttle is entering and leaving the box, and " consists, according to one arrangement, of a cranked or bent " lever fitted to the end of the stop rod, and provided with an " antifriction pulley at its free end, which pulley is operated upon " at the proper times by a lever carried by the framing of the " loom, and actuated by a suitable cam or tappet on the tappet " shaft, *or on the crank* shaft of the loom; the effect of this

" mechanism being to remove the pressure from the springs of " the 'swell,' and thereby admit of the shuttle entering its box " without impediment of any kind. A small spring is fitted to " each end of the slay, which presses against the back of the stop " rod finger, and is attached so as to be placed between the finger " and the shuttle box, and by pressing gently against the 'swell' " steady the shuttle when in the box."

[Printed, 8*d*. Drawing.]

A.D. 1860, April 26.—N° 1045.

CLARK, JOHN, and CROSS, WILLIAM.—" Improvements in " power looms for weaving checks." The invention consists in " applying to power looms for weaving checks of jacquard pat- " tern mechanism, comprising a movement which causes changes " of the cards at comparatively distant intervals (for 'large check- " 'ing') combined with a separate movement, which causes " changes of the cards at comparatively short intervals (for " 'small checking')."

Also in " applying to a shifting shuttle box loom, of a spring " and guide rollers, to insure the shuttle assuming its proper " position when the shuttle box shifts."

[Printed, 8*d*. Drawing.]

A.D. 1860, April 27.—N° 1060.

TAYLOR, WILLIAM BOWERS.—(*Provisional protection only.*)— " Certain improvements in looms for weaving." The inventor says:—" The object of my invention is to strike the weft into the " cloth with a blow similar to that produced in weaving by hand, " thereby relieving the warp from the injurious strain consequent " on the usual mode of working the lay or batten. In perform- " ing my invention I dispense with the crank shaft, and to each " lay sword a spring is attached; the lay is drawn back by wipers " or tappets fixed on a cross shaft, and as soon as the wiper " releases the lay it is at liberty to be drawn forward so as to strike " home the weft by the springs above referred to, the blow thus " given can be regulated by adjustable spring buffers attached to " the breast beam or to the loom side, or by other suitable agents. " The picking motion must be modified to suit the above mode " of working the lay or batten."

[Printed, 4d. No Drawings.]

A.D. 1860, April 27.—N° 1063.

NICHOLS, John.—This invention relates to mechanism for stopping a loom when the shuttle is not properly boxed. The patentee says :—" In one arrangement the stop rod and frog are " dispensed with, and at each side of the loom a stop is employed " independent of each other, so that the loom may be stopped if " the shuttle does not enter its proper box, whether the swell on " the opposite side be moved or not.

" In another arrangement I make the stops independent of " each other by employing a stop rod composed of two parts, and " acting on each part at its own side only. And also when frogs " are used I connect them with the tappet or second motion shaft " in such a manner that when the shuttle is at the right-hand " side of the loom the frog will be moved out of the way on the " left side, and vice versa."

[Printed, 10*d*. Drawing.]

A.D. 1860, April 27.—N° 1064.

BULLOUGH, James.—" Improvements in looms for weaving." The patentee says,—" My invention consists, firstly, in improved " modes of keeping the fabric distended to its full width during " the operation of weaving." " Instead of the ordinary temples " employed for distending the cloth I extend an elastic wire at " each side of the fabric from the front of the loom to near the " healds, and weave each wire into the edge of the selvedge, the " wires having an alternate up-and-down motion similar to that " given to the warp by the healds."

" Secondly, in improved modes of regulating the action of the " catch of the ratchet wheel of the taking-up motion.

" Thirdly, in various arrangements of mechanism for reducing " the resistance of the swell on the shuttle, or altogether dispensing with the use of the swell.

" And, fourthly, in the employment of two springs with set " screws to each, for adjusting the positions of the weights and " weight levers, and also in an improved distribution of the " levers."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1860, April 27.—N° 1070.

SIBLEY, Thomas.—(*Provisional protection only.*)—The *improvements relate, firstly,* "to the ' weft fork ' of ' weft stopping

" 'motions,' " and the "improvement consists in suspending " the 'fork' on cone centres, one or both of which are adjus- " table by a screw, which may be prevented from becoming " loose by lock nuts." "Secondly, to self-acting 'temples' and to " that class of 'temples' formed by two short spiked or toothed " rollers carried by a bracket, one pair of spiked tooth rollers " being on one side and another pair on the other side of the " cloth; and the improvement consists in placing the axis of the " rollers nearest the 'reed' at an inclination to the face of the " reed, the outside end of the rollers being nearest the 'reed,' the " other rollers remaining in the ordinary position, with their axes " parallel to the face of the reed." "Thirdly," "to the 'picking " 'motion,' and to arrangements for reducing the concussion of " the 'pickers' against their spindle bearings, and for retaining " the lubricating matter upon the spindles, and imparting it to " the pickers, so as to make them work freely;" and the "im- " provement consists in employing strips of woollen fabric or " other similar material, which are made up in the form of a " cylindrical roll, and kept together by hoops of leather or other " similar material. The edges of the strips of fabric come against " the picker and act as a 'buffer,' and also retain and give off the " oil as required."

[Printed, 4*d*. No Drawings.]

A.D. 1860, April 28.—Nº 1074.

SIDEBOTTOM, John.—(*Provisional protection only*).—" Cer- " tain improvements in looms for weaving." This "invention " consists, first, in constructing tappets for working the treadles " or levers of the shedding motion with grooves; these grooves " can be made of the required shape to open and close the shed, " and to give any amount of dwell when the shed is open to allow " the shuttle to pass.

" Secondly, in certain improved combinations of machinery for " picking or throwing the shuttle from one side of the loom to " the other; the pickers are connected to a sliding rod or rods " passing through, under, or at one side of the lay, and this rod " or rods is or are moved laterally by means of inclined surfaces " connected to the lay coming in contact with fixed pieces or by " other suitable machinery; by this means the picking sticks are " dispensed with, or the shuttle may be picked by a single picking

" stick vibrating on a stud in the centre of the loom, or by two " picking sticks or other apparatus.

" Thirdly, in an improved arrangement of parts for preventing " the injurious strain on the warp when the shed is being opened " and closed; the warp on leaving the warp beam is taken between two rods or rails, which are tightened together by a cam " on the crank shaft or other convenient part of the loom; the " tightening together of the rods or rails is effected when the " shed is partly open, and when the warp is secured between them " they are drawn towards the healds, thereby relieving the warp " and the healds from injurious strain."

[Printed, 4*d.* No Drawings.]

A.D. 1860, May 5.—N° 1124.

GRIMOND, JOSEPH.—" This invention has for object the " weaving of carpets and other fabrics, so as to obtain patterns " of a peculiar class in a simple and inexpensive manner. In the " class of patterns referred to the design is composed of rectangular spaces having some longitudinal lines and some transverse lines. According to one modification of the invention, " involving two colours for example, these lines are formed by " arranging the warp with the threads alternately of each colour, " and, in weaving, a weft shot of each colour is thrown in in " regular alternation.

" Four or more heddle leaves are used, the warps being drawn " through them, according to the pattern, and the treadles are " also actuated to correspond. The weaving operation differs " from ordinary plain weaving only in the tramping of the " treadles, and in the change of shuttle at each shot. The effect " produced is also the same as that of plain weaving, except that " two threads are passed over by the weft or warp at the end of " every longitudinal or transverse line of the pattern. The " arrangements may be modified to take in more than two colours, " and two or more threads passing through the same shed may " be treated as one."

[Printed, 4*d.* No Drawings.]

A.D. 1860, May 5.—N° 1127.

TWEEDALE, ABRAHAM, TWEEDALE, JOHN, and TAYLOR, SAMUEL.—(*Letters Patent void for want of Final Specification.*) —" *Improvements in temples for looms and in indicating the*

" number of picks made in such machinery for a given length " of cloth." The improved temple " consists of a series of spikes " arranged in a circular form, and mounted upon a revolving disc, " the surface of which, next to the cloth, is of a conical form. " This apparatus is mounted at an angle to the cloth, and is carried by an arm extending from an axis, to which a lever is " attached, which lever upon the slay advancing towards it is " struck, so as to cause the series of spikes to turn outward " bodily upon the axis; but when the slay retreats from this " lever, then the temple is at liberty to be drawn inward by the " tension of the cloth." " The revolutions of the series of spikes " necessarily represent the quantity of cloth woven, and the aforesaid vibrations of the slay represent the number of picks." To these parts the inventors " connect ordinary wheelwork and a " dial."

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 14.—N° 1186.

HOWARTH, Thomas.—(*Provisional protection only.*)—" This " invention relates to a simple and economical mode or method of " chasing roller temples used in looms for weaving, and to an " improved mode of fixing temples to the framing of looms.

" According to this invention it is proposed to cut or chase the " circumferential or spiral grooves on roller temples by means of " dies in lieu of a cutting tool and turning lathe as hitherto, and " then to cut or chase the longitudinal grooves so as to complete " the teeth in the ordinary or other convenient manner." " In " fixing double-side temples to the loom framing, each temple " is so adjusted as to revolve freely on a stationary stud pin, " which is fixed by a set screw into a slotted bracket at the " side of the loom framing, by which means either temple can, if " required, be adjusted higher or lower, so as to cause them to " press more or less upon the cloth, according to its texture. The " slotted brackets are carried by a rod passing under the cloth " and fixed with two springs."

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 16.—N° 1205.

AMBLER, Joseph.—(*Provisional protection only.*)—The inventor says,—" This invention consists in manufacturing a new kind

" of cloth or woven fabric in the following manner and by the " following means, that is to say:—I take worsted, cotton, silk, or " other fibrous materials of similar character thereto, using them " either separately or in combination; and for the purposes of " this invention I propose to employ single twist warp instead " of double twist warp, as heretofore practised. I produce a rib " by causing one portion of the warp to be wound on one beam, " and the other portion on another beam, and I throw across the " warp two threads of 'woof' or weft of different thicknesses; " the warp on one beam comes upon the smaller weft thread, and " is held tight whilst the warp on the other beam comes up over " the thicker weft thread, and is held less tight, which causes the " thick weft to be thrown upon the surface of the cloth, and thus " forms the rib."

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 17.—N° 1219.

SALISBURY, Silas C.—This invention relates to improvements on a former invention for which Letters Patent were granted to William Edward Newton, dated March 23rd, 1860, " for certain improvements in looms for weaving."

" The object of the first part of the present invention is to " ensure an equable delivery of the warp from the warp beam, " and a corresponding take-up of the woven cloth, the speed of " both which operations depends on the rate at which the " weaving takes place. To ensure a proper speed of delivery and " take-up, the motion for effecting these operations is derived " from the reciprocating carriage which supports and actuates " the shuttle."

The second part of the " invention consists in so mounting " the bobbin or cop in a shuttle, such as is described in the " Specification of the said former patent, that the axis of the " bobbin or cop will lie at right angles to or across the line of " traverse of the shuttle, the object being to facilitate the delivery " of the weft thread, which operation is assisted by leading the " thread through a rotating guide, described in the Specification " of the above-named patent."

The last part of the " invention relates to an arrangement for " beating up, whereby the veaving of heavy goods in looms where " *the reed is stationary*, will be greatly facilitated." This object is attained " by the introduction behind the breast beam of a " reciprocating comb or its equivalent, which will enter the warp " after each passage of the shuttle, and beat up the shoot, and " then retire to leave a free space for the passage of the shuttle " through the open web."

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1860, May 17.—N° 1220.

COLE, James.—This " invention of ' improvements in looms " ' for weaving,' relates to the means of forming two or more " sheds in the warps of figured fabrics, so that two or more shuttles may be thrown through separate sheds, and may be thrown " either in the same or in opposite directions. The effect of this " arrangement will be that the pattern or figure will be thrown " upon the surface of the fabric, and a clear back will be produced instead of the pattern threads being allowed to appear " on the back of the fabric, as is now the case in weaving " brocaded and figured silks and ribbons."

" Another improvement relates to a novel mode of forming two " or more sheds from the warp, so as to admit of forming on the " outside edges of the fabric a strip of work of uniform color or " without any figured pattern."

" Another improvement consists in the use and application of " double leashes, one end of the leash being provided with a " maille or eye for the warp threads to pass through, and the " other end is a plain leash. Both the lower ends of this double " leash are weighted, so that when the maille part of the leash or " heddle is lifted, the heddle cords may by the weight on the " plain part of the leash be still kept at tension and prevented " from slacking and the hooks from getting out of the proper " position."

" By means of the various improvements above set forth, or " some of them, two or more narrow fabrics may be woven " simultaneously in the same loom one above the other, or side " by side, but on different planes."

" Another improvement relates to a novel form or construction " of shuttle to be used in " the " improved looms, and consists in " making at the back of the shuttle a tongue groove or rebate, " which is made to slide in, or on a corresponding groove or " tongue in the shuttle plank."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1860, May 17.—N° 1223.

HOLDSWORTH, Samuel, HENDERSON, John, HENDERSON, William, and BAGLEY, Thomas.—" Improve-" ments in looms for weaving." The patentees say,—" One part " of our said invention consists of a new mode of inserting and " withdrawing terry or pile wires, both operations being performed " by means of the same lever. This lever is made to propel an " instrument which we call a saddle, and which moves upon " a bar alternately towards and away from the selvage of the " cloth in the loom. The saddle carries with it the terry or pile " wires, alternately inserting and withdrawing them; connected " with it is a catch for laying hold of the wires and withdrawing " them out of the cloth. A bar which we call a traverse bar is " attached to the saddle, and is made to traverse across it, carry-" ing with it an instrument for taking the wire from off the " aforesaid catch, and transferring it forwards for insertion in the " open shed of the cloth. The requisite direction for transferring " the wires is given to the movements of the traverse bar by " means of a switch bar turning upon a pivot at the centre, and " kept in position by a spring."

" Another portion of our invention consists of a new mode of " oiling the terry or pile wires by causing the oil to run down a " channel into a sponge or other retaining substance at the side " of the loom, over which sponge the wires are drawn as they are " pulled out of the cloth."

" Another part of our said invention consists of an improved " method of giving motion to the picking staffs. For this pur-" pose, we affix to a wheel on the tappit shaft, or elsewhere, pro-" jecting bars, which we call picking nipples. These picking " nipples, by the revolution of the said wheel, are made to strike " against levers connected to the picking staffs. One of these " levers is a simple crank lever; the other is constructed with " one arm of the crank at one end of a shaft, and the other " arm at the other end of the same shaft. Both the picking " staffs are driven from one side of the loom by the same wheel, " the motion being carried to the picking staff on the further " side by means of the aforesaid shaft with a lever arm at each " end."

" Another *part of our* improvements consists in the use of a " *wheel with internal teeth* affixed to the tappits and a pinion

" wheel working in gear with it, the said pinion wheel being on " the tappit shaft."

[Printed, 1*s.* 8*d.* Drawings.]

A.D. 1860, May 17.—Nº 1224.

CONANT, Hezekiah. — " A new and useful improvement in " mechanism for regulating the delivery or letting off of warp in " looms for knitting or weaving." This " invention consists in " combining a belt guide with a yielding or depressible roll (over " which the warp passes in weaving, the same being commonly " designated as the whip roll) in such a manner that a belt " running upon conical pulleys may be shifted, and their relative " difference in speed either increased or diminished according as " the said roll may be moved in one or the other direction by the " action of said warp, whereby the letting off or delivery of the " same is regulated."

[Printed, 6*d.* Drawing.]

A.D. 1860, May 19.—Nº 1230.

FERGUSON, James.—This invention consists,—Firstly, in " effecting of the stoppage of a loom or warping machine, on the " failure or breakage of a warp thread, by means of obstructing " pieces supported by the threads, and a constantly vibrating or " reciprocating detail, which, on being directly obstructed by any " one of the said pieces, causes the throwing off of the stopping " lever."

Secondly, the invention relates to jacquard apparatus. " Provi- " sion is made for shortening the tread or, extent of movement of " the main actuating lever or treadle ; or, if the ordinary length of " tread is retained, of lessening the strain or weight acting against " it. This is effected by the agency of a spring or weight, which, according to one plan, acts by means of a lever and species of " toggle joint link on a lever or other detail through which the " movement is transmitted." " If the jacquard apparatus is of " the kind in which there are two lift boards required, which are " locked to the lifting mechanism at different times, a contrivance " is introduced to insure the locking when a change takes place " from one lift board to the other."

" *The shifting of* the pattern barrel or cylinder out and in is by " *this invention effected* by means of a toggle-joint movement,

" which is most powerful towards the termination of the inward " shaft. Instead of the ordinary contrivance for turning the " pattern barrel two comparatively small four-toothed ratchet " wheels are fixed on the spindle, one serving for turning in one " direction and the other for turning in the opposite direction." " In the class of weaving to which a portion of the present im- " provements have more particular reference, it is usual to 'twice " 'draw,' or go a second time over every bridle of cards. To effect " this, according to this invention, a self-acting motion is intro- " duced, in which a weighted cord is wound up whilst the bridle " is being drawn for the first time, provision being made to pre- " vent the action from extending beyond the number of cords in " the bridle. At the same time, a small pulley on the spindle of " the pattern barrel is thrown into gear with the barrel, and " winds up a pair of cords attached to a lever in such a way as to " prevent the barrel being turned too far. The lever is acted upon " by the weighted cord, when this last is released at the end of " the bridle, and turns the pattern barrel back to the commence- " ment of the bridle, the releasing being effected by the action of " a needle provided for the purpose, and acted upon by the last " cord of the bridle."

"In connection with these improvements the contrivance for " keeping the pattern barrel square is modified so as to prevent " the barrel from being drawn home before it is turned quite " square."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1860, May 19.—N° 1237.

NEWTON, William Edward. — (*A communication from Charles Crossley.*)—" Improvements in looms for weaving carpets " and other looped and pile fabrics."

"This invention consists in the application to a Brussels carpet " loom of a peculiar combination and arrangement of devices " intermediate between the slay and the harness or heddles, the " object of which is to throw up the worsted or loop forming " thread to the right and left alternately over and above the " cotton warp threads."

"In carrying out this invention there is interposed between the " heddles and the slay a reed which vibrates to the right and " left across the loom for about the one-eighth of an inch each " way. In front of this vibrating reed is placed a series of knee-

" shaped steel pieces which are attached to a rod." "This reed " and the knee pieces vibrate in opposite directions." "The " operation of the mechanism is as follows:—The first, second, " and third picks of the shuttle are made while the vibrating reed " and the knee pieces are central or in the middle of the slits of " the reed in the slay, while the fourth pick of the shuttle is made " while the vibrating reed is moved to the left, and the knee " pieces or loop formers to the right, so as to cause the woollen " thread to be thrown over the left of the loop formers, and the " loop thread is then depressed by the heddle, and the next throw " of the shuttle binds it in that position. The fifth, sixth, and " seventh throws of the shuttle are made while the reed and the " knee pieces are central in the slits of the slay, and are made " for the purpose of forming the back of the fabric and securing " the loops together; while the eighth movement or pick is made " the reed and the vibrating knees are vibrated in the contrary " direction to that for the fourth pick, thus throwing the looping " threads to the right, over the loop formers; as the cloth progresses it slides off the loop formers, or in case of its being " made into velvet, the loops are cut as they slide off."

"In order to let off the woollen warp thread properly from its " warp beam," the patentee attaches "to the shaft of the warp " beam a pulley of sufficient face to admit of a cord passing " several times around it. A weight is attached to one end of " this cord, and a lighter weight is attached to the other end of " the cord. The latter end of the cord passes through an arm " with a hole or slot in it. This part of the cord is knotted " at such a point that when the loop warp is required to be let off " the knot rests on the arm. As the warp is being drawn off " from the beam it causes the knot in the cord to descend " and rest on the arm. A knot resting on the arm relieves " one weight from its tension on the cord and slackens up the coil " on the pulley. The heavier weight then takes up that slack, " and thus maintains the proper tension on the looping warp."

[Printed, 10*d.* Drawings.]

A.D. 1860, May 21.—N° 1248.

SAMUELS, Samuel Rodgers.—"This invention has for its " object improvements in machinery used in weaving. For these " purposes the batten is moved to and fro in the ordinary manner, " but in place of the dents of the reed for each fabric being

' upright, and the shed or sheds of the warps opened horizontally, " the dents of the reed for each fabric are arranged in a horizontal " position, and the shed or sheds in the warp is or are opened so " as to cause the fabrics to be woven in an upright or vertical " position, the shuttle or shuttles used in weaving each fabric " being caused to rise and fall in an upright position, in place of " passing in a horizontal position; and it is preferred that the " shuttles should be arranged so as to be actuated by racks and " pinions in a somewhat similar manner to that by which shuttles " have before been actuated in looms employed for weaving " narrow goods, the apparatus being suitably arranged to move " the shuttles up and down through the sheds in place of horizontally as heretofore."

[Printed, 1*s.* 8*d.* Drawings.]

A.D. 1860, May 22.—N° 1259.

MARLAND, John.—(*Provisional protection only.*) — "This " invention has for its object improvements in preparing for and " in warping and sizing woollen and worsted and other yarns and " threads. In the first place the yarn or thread as it comes from " the spinner, either on bobbins or cops, is rewound upon long " conical bobbins or tubes, which are made to hold as much yarn " or thread as is practicable for the purpose. These bobbins or " tubes are then placed in a creel or frame, where a friction is " applied to each independent yarn or thread. The means of " obtaining this friction consists in passing the thread or yarn " through an eye, and afterwards, in nearly parallel lines, partly " round upright pins, gaining the necessary friction from the " group of pins used; the yarn or thread is then unwound from " the creel or frame, and is placed upon a reel in sections of any " number of threads that may be required to form the warp. " When small quantities are required the yarn or thread is sized " and dried in this operation alone, but when large quantities are " required the warp is placed in a dry state upon the reel, and the " yarn or thread is then sized, dressed, dried, and beamed upon " the loom beam."

[Printed, 4*d.* No Drawings.]

A.D. 1860, May 24.—N° 1284.

SHARP, John.—(*Provisional protection only.*)—"The improve" ments relate to means or apparatus for giving motion to rotary " *shuttle boxes in looms for weaving.*"

It is proposed to fix "upon the outer end of the shuttle box a " round plate with as many notches in its circumference, and " correspondingly as many pins on its outer surface, as the shuttle " box contains compartments. These pins are acted upon by " two catches, one on each side respectively, which catches com- " municate with levers on the bottom connected at the other end " with pendant rods which are raised and lowered by a small " jacquard cylinder and pattern cards in the usual way. The " jacquard cylinder being moved up and down by a crank and " turned by a four-sided plate, called a lantern, fixed on one end " coming in contact with a protruding spring catch. To fix the " shuttle-box in each attained position, with the respective com- " partment exactly opposite the shuttle-race, a catch slips into the " notches of the round plate afore-mentioned, which catch is " acted upon and moved out of the notches to allow the box to " turn by a lever raised and lowered for longer and shorter " periods by a tappet with elevations of different length with " which it is brought in contact respectively by one or more " pendant rods moved by the jacquard cylinder afore described."

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 25.—N° 1294.

INGHAM, John, and **COLLIER**, George.—(*Provisional protection only.*)—"The improvements relate to the production of "" fabric of the character of that technically called 'camlet,' by " the use of warp threads composed of worsted, alpaca, or mohair, " combined with weft of cotton and worsted, mohair, or alpaca; " and such weft threads are obtained by two threads, one of " cotton, and the other of worsted, mohair, or alpaca, but both " of which are in the weaving simultaneously thrown into the " same sheds."

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 29.—N° 1319.

BERCK, Charles.—This "invention relates to the manufacture " of an improved selvage for woollen cloths and other stuffs or " fabrics, and consists in employing for the manufacture of such " selvages a thread of cotton, flax, or other vegetable textile " *substance combined* with a thread of hair of any kind, and " *twisted together;* or in lieu thereof a thread of cotton, flax, or

" other vegetable textile substance, with a thread of wool twisted " together; the selvage is made by the ordinary means."

[Printed, 4*d.* No Drawings.]

A.D. 1860, May 30.—N° 1333.

PICKSTONE, WILLIAM, and BACON, WILLIAM.—(*Provisional protection only.*)—" This invention has for its object improve-" ments in machinery for dyeing, washing, and sizing. For these " purposes the vessel used is of an annular form, and furnished " with steam jackets or cavities for heating the contained fluid, " which jackets can either be placed on its exterior and interior " sides, and on its bottom, or on such of them as may be neces-" sary. This dye, wash, or sizing vessel is to be fitted with pipes " for the purpose of washing the yarn, thread, or fabrics contained " therein. These pipes may be introduced either over the vessel, " or near the centre, or both, and are formed with numerous holes " or slots for the injection of washing water or other fluid. In " the centre of the space formed by the inner side of the annular " vessel is an upright driving shaft or axis, which carries a frame, " also of an annular form, and such frame is received into the " annular vessel in such manner as to be capable of revolving " therein. The frame carries a series of pairs of rollers, arranged " radially across the annular vessel, on which rollers the skeins, " hanks, or fabrics are placed or wound round. These rollers, " with the materials to be operated upon thus attached, are placed " or hung in the revolving frame, and in such manner as to keep " the yarns, thread, or fabrics in a perpendicular position. Provi-" sion is made for giving motion to the series of rollers, so that " the materials may at pleasure, uniformly or with definite " alterations be acted upon by the fluids used in the dyeing, wash-" ing, or sizing processes. The frame and machinery are so " arranged and constructed, that when the dye and wash liquors " and fluids have been run from the vessel, the yarns, thread, or " fabrics carried by the rollers may, without being removed from " the vessel, be freed from moisture by centrifugal action, caused " by a quick rotation of the frame."

[Printed, 4*d.* No Drawings.]

A.D. 1860, June 14.—N° 1455.

WHITESMITH, ISAAC, and STEVEN, JAMES.—" Improve-" *ments in looms for weaving.*" The patentees claim:—" First,

" apparatus for regulating the position of a two-celled shuttle " drop-box by a pair of toothed pinions and a hook or pall, " governed in its action by pattern cards.

" Second, apparatus on the same principle for regulating the " action of shot and shot looms.

" Third, apparatus on the same principle for regulating the " action of three or four shuttles through a ring and eccentric.

" Fourth, apparatus on the same principle for regulating the " action of three or any greater number of shuttles through one " or more differential levers.

" Fifth, apparatus on the same principle for regulating the " action of any number of shuttles through a flexible chain of " pattern tappets.

" Sixth, the pattern tappets whereof that chain is made up, as " herein-before described.

" Seventh, the reversing apparatus for bringing back any shuttle.

" Eighth, the use in regulating the pattern of a duplex arrange- " ment or double series of pattern cards, in which one series " moves while the other stands still, each series being set in " motion at the required instant by the other series, which im- " mediately afterwards is itself stopped, and so on alternately.

" Ninth, apparatus for regulating the action of such double " series of cards as herein-before described.

" Tenth, apparatus on the same principle with that claimed in " the first clause of this claim, for regulating through hanging " catches the action of heddles, so as to weave twill and plain, or " different kinds of twill alternately.

" Eleventh, apparatus on the same principle and for the same " purposes, acting through tappets upon treddles with moveable " fulcra, so that one or other set of treddles is brought into " action as required.

" Twelfth, apparatus on the same principle, and for the same " purposes, in which the before-mentioned moveable fulcra of " the treddles are shifted by means of cranks.

" Thirteenth, apparatus on the same principle for regulating " the action of an open shed or tarlatane loom through a shed- " ding tappet, which slides longitudinally on the tappet shaft of " the loom.

" Fourteenth, the use of the longitudinally sliding shedding " *tappet for regulating* the action of looms."

[Printed, 1s. 10d. Drawings.]

A.D. 1860, June 14.—N° 1456. (* *)

SPARKHALL, Edward.—(*Letters Patent void for want of Final Specification.*)—" Improvements in producing certain designs and " patterns upon cloth or textile fabrics, in order to procure certain " effects in garments made therefrom."

This invention consists in producing in or upon cloth or textile fabrics " by weaving or otherwise," designs or patterns in lines, straight, curved, or zigzag, running obliquely and opposite each other, so as to meet in a point at the middle of the " piece," or " thereabouts at an angle of 45°, or any other angle, thus pro- " ducing in one and the same ' piece ' a design or pattern and its " reversed duplicate."

" But instead of making the whole design or pattern in dupli- " cate in the one ' piece,' as aforesaid, it may be produced in two " companion pieces; one in which the lines or stripes shall run " obliquely up or down to the right, and the other obliquely up " or down to the left; in which case the tailor or worker will have " to take care to make the garments up so as to produce the same " effect as if the first-mentioned plan were adopted (viz., producing " both sets of lines in one and the same piece). The intention " being that when waistcoats, cloaks, or other garments, whether " for men or women, are made up, the lines of the pattern or " design shall ruan inclining to or from each other, and so pro- " duce the desired ornamental effect contrary to the usual method, " which is to have the lines of the pattern all one way."

[Printed, 4*d.* No Drawings.]

A.D. 1860, June 29.—N° 1579.

MORGAN, George Cheesman.—(*A communication from Joseph Clifton.*)—" Improvements in looms."

" This invention consists, first, in arranging the mechanism " for drawing down the hooks, so that their range of motion may " be varied when required to open the shed a greater or less dis- " tance for work varying in thickness.

" Secondly, in arranging the mechanism for giving motion to " the shuttle carrier so as to throw the shuttle a greater or less " distance as required in weaving cloth of various widths in the " same loom.

" Thirdly, in communicating motion to two or more shuttles " at the *same time by* means of a vibrating shuttle carrier

" arranged with independent adjustable arms, whose distance " apart may be varied as required in order to carry the shuttle " through webs of different widths.

" Fourthly, in arranging the race rods forming the guides for " the shuttle on either side of the webs, so that their distance " apart may be varied for different widths of webs, and also so " that their height above the race board may be varied in order " to receive the lower webs when the shed is open, and allow the " shuttle to pass over without interfering with them.

" Fifthly, in arranging the material covered by the warp and " woof threads, and connecting it with the heddles, so that it is " raised with the upper leaf of the shed when the shot of woof " passes through the shed of warps covering the under side of " the material, and is depressed by the heddles so as to form the " under leaf of the shed, when the woof passes between the warps " covering the upper surface of the material."

[Printed, 10*d*. Drawing.]

A.D. 1860, June 29.—N° 1580.

MORGAN, GEORGE CHEESMAN.—(*A communication from Joseph Clifton.*)—" Improvements in the manufacture of driving belts " and straps."

" This invention relates to woven belts or straps, the warps of " which are of animal fibre, and the woof of either animal or " vegetable fibre, impregnated and covered with a pliable water- " proof cement."

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 3.—N° 1602.

JOHNSON, JOHN. — " Certain improvements in jacquard " machines." The invention consists, " first, in an improved " combination of levers applicable to jacquard machines for rais- " ing the harness and the warps, so as to form a **V** shed, with a " rising motion.

" Secondly, the combining of two hooks to one cord, and " reducing the said cord to two-fold prior to its going through " the cord board.

" Thirdly, in boring the holes in the cord board in two lines " *placed alternately*, instead of straight in one line as heretofore, " *both rows of holes being* for one row of cords.

"Fourthly, the application of a long slotted one-eyed needle "attached to two hooks of the double-lift machine, to be worked "by two cylinders placed on the back and front of the machine, "which is worked without spring box.

"And, lastly, the application of reeled harness, in which the "couplings work through the comber board, and the knots of "the couplings are below the said comber board."

[Printed, 10*d.* Drawing.]

A.D. 1860, July 3.—Nº 1605.

BROOMAN, Richard Archibald.—(*A communication from Heinrich Joachim Natorp.*)—(*Provisional protection only.*)—"An "improved fabric suitable for holding charges of gunpowder."

"This invention consists in weaving a fabric from silk 'fly' and "silk 'noils' and other like products from waste silk. I first "spin these 'fly' and 'noil' fibres, and then weave the threads; "the result of the spinning I obtain a new fabric, which will not "readily burn or smoulder, especially when any portion is left in "a gun after the firing of a charge."

[Printed, 4*d.* No Drawings.]

A.D. 1860, July 5.—Nº 1627.

OGDEN, John.—This "invention relates to the weaving of "certain fabrics wherein the number of 'picks' to an inch are "required to vary, to produce a close or loose fabric at intervals "during the weaving.

"The improvement consists in so governing the action of the "pawl operating upon the 'taking up' ratchet wheel, that it "shall only be in gear with or move the ratchet wheel to take up "at certain intervals, so that whilst out of gear or not moving "the ratchet wheel the fabric remains stationary, and is consequently woven closer or thicker. This may be effected by "attaching the pawl to one of the heald levers by means of a cord "or chain, so that the jacquard or other mechanism for producing designs or patterns may be caused to operate upon the pawl "for the said purpose."

[Printed, 6*d.* Drawing.]

A.D. 1860, July 11.—Nº 1671.

SMITH, Arthur.—(*Provisional protection only.*)—"Improvements in the material for sizing or dressing yarns preparatory

" to weaving." The patentee says:—"Instead of the material " now used, such as flour or sago, I use the following materials in " or about the quantities after mentioned, or if a lesser or greater " quantity of the mixture be required, then in proportion to the " said quantities, vizt.:—Indian corn, ground and sifted, forty-" two pounds; farina, from the potato, twenty-four pounds; " common soda, seven pounds; wheat flour, four pounds; " potatoes, boiled and left to sour, then passed thro' a grater with " hot water poured on them, twenty-eight pounds, making in all " one hundred and five pounds. These various substances being " mixed together and boiled in water, the mixture is used for " sizing or dressing yarns preparatory to weaving in the ordinary " way, and it is especially applicable to cotton yarns, but may " also be applied to linen yarns. In the case of fine yarns, I add " to the mixture a small quantity of palm oil."

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 13.—N° 1697.

HENRY, MICHAEL.—(*A communication from François Durand and Henry Auguste Pradel.*)—" Improvements in looms, and in " the jacquard apparatus of looms." "This invention consists, " in the first place, in the employment in looms for weaving of " inclined wheels for driving the shuttle and actuating the batten " or lay.

" Secondly, the invention consists of an arrangement of guide " boards or slabs for guiding the lead weights of the jacquard " cords, and thereby preventing those cords from entangling.

" Thirdly the invention relates to an improved jacquard apparatus." "Constructed according to this invention, the needles " are brought to and from the cards or their equivalents, and the " cylinder has only an intermittent revolving motion, and no to-" and-fro movement; a continuous band of perforated paper " rolled on the cylinder may be employed instead of the usual " cards." "The jacquard is worked by connections from crank " wheels on the driving shaft actuating a rod or bar working a " moveable piece or frame which slides up and down in guide " ways, and so effects the required movements. This piece carries " the rising and falling piece or griff, which moves up and down " with it, and has a roller at each end working in guide ways, " which piece or griff as it rises is contrived to move forward " *towards the needle* carrier, a distance equal to that moved for-

" ward by the latter; the moveable frame is furnished with two " other rollers which work outside their guide slots and act in " the curved paths of levers on which the needle carrier is placed, " thereby forcing the latter back. When the rising and falling " piece or griffe comes down, the carrier returns and brings its " needles to the cylinder cards. The card or perforated paper " band is shifted to present fresh parts as required for the " pattern; thus the friction roller of the lifting piece as it rises " comes against and works a lever or bar carrying a sort of " double pawl or clawker, one branch of which is in gear with a " ratchet or tooth wheel on the cylinder axis, and turns that " wheel one tooth at a time, thereby turning the cylinder the " proper quantity, the perforated band unrolling on it, guided by " the conical studs; a spring click acts on a ratchet wheel on the " cylinder axis as a regulating stop. The cylinder's direction of " rotation is reversed by pulling a cord, which moves the double " pawl or clawker, and frees the first branch thereof from its " wheel, bringing the other into gear with another wheel toothed " in reverse direction; when this cord is released, a spring throws " the first branch again into gear with its wheel."

[Printed, 10*d.* Drawings.]

A.D. 1860, July 16.—N° 1713.

IVERS, SAMUEL, and SMITH, MARK.—(*Provisional protection only.*)—" The object of this invention is to communicate motion " to and to arrest the motion of looms by means of a friction " clutch box, mounted on the crank shaft, or on an additional " shaft connected to the crank shaft, by gearing or otherwise; the " moveable part of the clutch box has a cone or friction apparatus " at each end, and is connected to its shaft by a sliding key and " groove; one end fits in the driving pulley, which is loose on the " shaft, and the other end fits in a friction box fixed to the frame " side. When the loom is at work the sliding part of the clutch " box is in contact with the driving pulley; but when the loom is to " be stopped, the sliding part of the clutch box is moved laterally " on the shaft, so as to release the driving pulley, which then runs " loose; the loom may be stopped suddenly by bringing the other " end of the clutch box into contact with the friction box fast to " the framing. When the driving pulley is furnished with a sliding clutch box at each side it may be made to drive two looms."

[Printed, 4*d.* *No Drawings.*]

A.D. 1860, July 16.—N° 1714.

SMITH, ALFRED.—(*Provisional protection only.*)—" Certain im-" provements in the manufacture of velvet or other similar piled " fabrics." " The improvements consist in the novel employment " and use of five threads to each ' dent,' three for the ground or " back of the velvet, and two to form the pile, and in so arranging " the action of the 'treddles,' that each pick shall form a series " of loops made by the last pick, the loop to form a series of loops " made by the last pick, the loop to form the pile being raised " every fourth pick, in contradistinction to forming a series of pile " loops every third pick, and raising the pile at the distances of " every third pick; by means of which improvements the pile is " distributed over the surface of the fabric instead of being in " straight lines, thus causing the ground or fabric to be better " covered, and also a better class of velvet is produced with a less " number of wires to cut out than by the usual method."

[Printed, 4*d.* No Drawings.]

A.D. 1860, July 17.—N° 1725.

HENSON, JAMES, and HENSON, WILLIAM FREDERICK.—" Manufacturing canvas and other fabrics for tarpaulings, sacks, " rick-cloths, ship-sails, and for other purposes; and also for " uniting the edges of the same."

This invention is thus described by the patentees :—" We give ' to canvas and other fabrics or materials, either woven or other-" wise, manufactured of cotton, linen, wool, flax, silk, or other " materials, or any combination thereof, durability and increase " of strength, by manufacturing them into squares or other " suitable forms, whereby a bead, ridge, or flat surface is " raised upon the surface of such materials when manu-" factured."

" We also unite the edges of the fabrics or materials by lapping " or fishing them with a solution of caoutchouc or gutta percha, " or either or both the said substances in combination with " shellac or other suitable substance, such as marine glue, either " alone or in combination with any of the before-mentioned " substances. After having applied the solution to the edges of " the fabric or material we pass the same through or between " suitable rollers for the purpose of uniting them and making a " seam or joint of great strength and durability, thus rendering

" the present mode of sewing quite unnecessary. If found de-
" sirable the edges or joints may be fished and sewn, and the
" solution added."

[Printed, 4*d.* No Drawings.]

A.D. 1860, July 18.—N° 1738.

PIERCE, THOMAS CAREY WILLARD, and ISHERWOOD, GEORGE FREDERICK STANLEY.—(*Provisional protection only.*) —These " improvements are designed for the purpose of weaving
" two, three, or more pieces of cloth or fabric in one loom, such
" two, three, or more pieces being separately and independently
" manufactured in the ordinary horizontal position, and one above
" another."

[Printed, 4*d.* No Drawings.]

A.D. 1860, July 20.—N° 1765.

NEWTON, ALFRED VINCENT.—(*A communication from Giovanni Caselli.*)—(*Provisional protection only.*)—" Improvements in the
" manufacture of apparatus for regulating the force of electric
" currents."

" The apparatus at present used for regulating the force of
" electric currents, and known to telegraphists by the term
" 'rheostat,' is very expensive to manufacture, and possesses
" great disadvantages in practice.

" Now the object of the present invention is to remedy these
" disadvantages. In order to produce electric conducting sur-
" faces suitable for this instrument the following is the mode of
" proceeding :—Cotton warps are arranged in a loom of a breadth
" which may vary according to requirements, and two weft
" threads, one of cotton, and the other of very thin iron wire
" (contained in separate shuttles), are thrown in succession
" through the shed formed by the cotton warps, by which means
" a fabric is woven in such manner that the contiguous portions
" of wire laid in the cloth will be separated by a cotton weft
" thread. A semi-metallic fabric will thus be obtained in which
" the wire will be insulated throughout its whole length. This
" insulation may be rendered more perfect by steeping the woven
" fabric in an alcoholic solution of gum lac or in liquid tar. The
" fabric thus manufactured is to be folded up and placed in a
" wooden box, upon the outside of which copper studs are set in

" metallic communication with the different sections of the wires " of the cloth, and the rheostat is formed."

Another mode of constructing the rheostat, instead of employing the process of weaving, is described.

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 21.—N° 1773.

NEWTON, William Edward.—(*A communication from Van Peteghem.*)—"This invention of improvements in looms for weav- " ing has for its object to construct looms for weaving figured " fabrics in such a manner that the use of perforated cards, and " consequently the preliminary operation of 'reading' or trans- " ferring the pattern or design to such cards, may be dispensed " with. To this end the figure, pattern, or design to be produced " in the fabric is to be cut out or otherwise formed in wood or " some hard substance, and the several parts of which the pattern " or design is composed are secured in any convenient manner " in a moveable frame or carriage, which is capable of being " moved to and fro on guides by means of suitable mechanism in " order to operate upon the needles, whereby the pattern warp " threads are selected. A griff or trap board of the ordinary kind " is used, and is worked and lifted in the usual manner to raise " the pattern warps. Instead of the ordinary 'cylinder' or prism " of the jacquard apparatus, the projecting ends of the horizontal " needles are made to enter horizontal holes made in the face of " a reciprocating block, which is moved forward at proper inter- " vals like the cylinder or prism of an ordinary jacquard loom. " A series of vertical holes are made in the reciprocating block to " receive the ends of a series of pendent weights or lingoes, which " are suspended by cords or strings from the ends of a corre- " sponding number of levers mounted above, to the opposite ends " of which levers are connected a series of vertical needles which " project upwards, and nearly touch the face of the pattern or " device. The vertical and horizontal holes made in the recipro- " procating block meet at or near its centre, and thereby form " rectangular passages through the block. It will now be under- " stood that if the pendent weights or lingoes are allowed to " descend to the bottom of the vertical holes in the block the " *horizontal needles* will be prevented from going home to the " *ends of the horizontal* holes, and consequently the hooked wires

" of the jacquard will be pushed back, and will not be lifted by
" the griff when it rises."

[Printed, 8*d*. Drawings.]

A.D. 1860, July 23.—N° 1780.

TURNER, ARCHIBALD.—(*Provisional protection only.*)—" This " invention of improvements in the manufacture of elastic fabrics " relates to a novel mode of making narrow fabrics and elastic " bands."

The " first improvement relates to that kind of elastic fabric " which is made with two shuttles thrown simultaneously in the " same direction, and consists in starting one of the shuttles a " little in advance of the other, or throwing one somewhat quicker " than the other, so that one shuttle should finish its course a " little before the other, although for a portion of the course the " two shuttles are moving simultaneously. The object intended " to be effected, and the result produced by operating the shuttles " in this manner, is to produce a better selvage than heretofore " when the shuttles are thrown simultaneously.

" The next improvement relates to the manufacture of elastic " bands or rings," and does not belong to the subject of the present series.

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 25.—N° 1795.

TAYLOR, WILLIAM EDWARD. — This invention consists in arrangements of parts of looms, " whereby the motion of the lay " or batten is retarded at the back part of the stroke." One mode of performing the invention " is by attaching or casting a " projecting bracket to the lay swords or to the lay, and connecting " these brackets by very short crank arms to the crank shaft."

In another arrangement described, the crank is jointed to a lever, one end of which is connected to the upper end of a link, the lower end of which is hinged to a stud projecting from the side of the loom; the other end of the lever is jointed to the connecting arm which gives motion to the lay.

[Printed, 10*d*. Drawing.]

A.D. 1860, July 27.—N° 1822.

DUGDALE, EDWARD.—The patentee says,—" My invention " relates to the shedding motion of looms, and it consists in cer-

"tain improved combinations of parts for imparting the requisite "rotary motion in contrary directions to the roller shaft to which "the healds are connected.

"One mode of constructing my improvements is by means of a "crank on the tappet or other shaft of the loom acting on an "internal tappet connected to a rack which gears in a pinion on "the roller shaft, consequently, as the crank revolves, the rack "moves to and fro, and the peculiar shape of the tappet produces "the requisite dwell in the opening and closing of the shed.

"Another mode of constructing my improvements is in forming "single or double grooves on the circumference of a cylinder "which grooves act on a bowl in a lever made with a toothed "segment gearing into a pinion attached to the roller which is "connected to the healds; the bowl is guided from one of the "double grooves to the other by a shunting point swivelling on a "stud fixed near the crossing of the grooves. In weaving four-"leaved twills or other fancy goods it may be requisite to employ "two or more levers with segments, and acted upon by additional "grooves in the cylinder."

[Printed, 6*d*. Drawing.]

A.D. 1860, July 28.—N° 1838.

BIRKBECK, George Henry.—(*A communication from Elie Dominique Baril.*)—"This invention relates principally to the "apparatus employed for introducing and withdrawing the wires "in looms used for weaving velvet or other cut pile fabrics." "The apparatus for inserting and withdrawing the wires consists "of a frame mounted on axes, to which a vibrating lever is "attached, which actuates a carriage sliding to and fro on a guide "bar carried by the frame. The carriage is furnished with a "spring bolt, which is raised up and released from time to time "as required by a rod and lever actuated by a cam or eccentric. "The lower end of the spring bolt is suitably formed to enter a "slot or mortice formed in the head of the wire through which it "passes into a corresponding slot or mortice formed in a projec-"tion (fixed on the sliding carriage) which comes under the head "of the wire to hold it when it is about to be drawn out of the "fabric. A to-and-fro movement is given to the frame which "carries the apparatus for inserting and withdrawing the wires "by means of a cam, which actuates a rod having a spring "thereon at the back of the frame, which permits the rod to

" accommodate itself to the regulated amount of movement " required by the frame to place the sliding bolt over the head of the " next wire to be withdrawn, an adjustable stop being employed " to determine the amount of movement of the frame. The wire " as it is withdrawn is guided in its movement by a rod which is " moved to and fro in guides by a cam or excentric, and the wire " is received and supported in a groove or channel fixed to " the moveable frame. The heads of the wires as they are inserted " in the fabric are guided side by side, under a guide fixed to the " table over which the fabric passes, and there is a pin or stud " fixed in the head of each wire, which also comes against the " guide and regulates the position of the wire. The table over " which the fabric passes is prolonged on the side at which the " wire enters the shed or opening in the warp, by which arrangement " ment the blade of the wire is supported until it enters the warp. " In order to ensure the correct introduction of a wire into the " shed opened in the warp to receive it, an inclined guide or mouth " piece is employed, which is capable of moving into and out of " position for this purpose. A forked guide is also employed on " the left-hand side of the loom, which receives the end of the " wire to which the cutter is attached and retains it in a correct " position whilst in the fabric. To prevent the backward movement " ment of the loom, and the consequent injury likely to arise when " a wire is being withdrawn, a ratchet wheel is fixed on the main " driving shaft or axis, into the teeth of which two lever clicks or " catches take and prevent the loom from turning backwards " until the workman raises the clicks or catches out of the teeth " of the ratchet wheel. In place of soldering the heads to the " wires as heretofore they are jointed or connected by a pin, screw, " or hook, or by other means which enables them to be readily " attached or renewed if required."

[Printed, 1*s*. Drawing.]

A.D. 1860, July 30.—N° 1848.

GREAVES, Hilton.—" Improvements in hecks or mechanism, " or arrangements used in warping yarns or threads." The patentee says,—" My invention consists in modifications of the " common 'heck,' so that the threads passing through its eyes " may be divided into sections of any required number, as well as " *into divisions of alternate* threads, as in the common heck. I

“ accomplish this by dividing the toothed bars in which the
“ ‘ eyes ’ of the ordinary ‘ heck ’ are secured into sections, containing
“ the number of ‘ eyes ’ required in such section, and
“ arrange them in guides so as to slide vertically, and actuate or
‘ elevate and depress them as required by a double bar or plate
“ made to slide up and down, and having certain notches or projections,
“ which are made to engage and disengage as required
“ with projections from the said sections by moving the said
“ double bar or plate endways, by this means selecting those eyes
“ which require to be elevated.”

[Printed, 8*d.* Drawing.]

A.D. 1860, August 3.—N° 1887.

RIVES, JACQUES.—These improvements relate to jacquard apparatus. It is proposed to diminish the distance through which the card cylinder is moved by giving an opposite motion to the hook which acts upon the cylinder to turn it. “In addition to
“ providing each needle with a spiral spring,” the patentee places
“ at the back of the needles a plate attached to a rod which
“ passes from the back of the needles to beyond the front of the
“ needles; this rod is furnished with a spring which tends constantly
“ to press the plate against the backs of the needles and
“ so keep the needles in their forward position.” To prevent the cards “getting out of gear with the cylinder,” the patentee embraces “the upper half of each end of the cylinder with the arc
“ of a circle, between which and the cylinder there is sufficient
“ space to allow the cylinder to rotate freely, but there is not
“ sufficient space to allow the cards to get off the pins.”

“ To prevent the card cylinder acting on the needles unless it is
“ properly rotated,” the patentee places “ a stop on the framing,
“ against which, if the cylinder is not properly rotated, one of
“ the pins which project from the end of the cylinder, and by
“ which the cylinder is rotated, as above described, comes in contact,
“ and so prevents the needles being acted on; but when the
“ cylinder is properly rotated, the pin on the cylinder is received
“ into a slot in the stop, so that the cylinder may move up to and
“ act on the needles.” The cards are connected together “ by
“ strips of metal bent to an oval form thus .”

In the Specification of a former patent, dated October 24th, 1855 (N° 2377), “ a machine was described for punching the holes
“ in the jacquard cards, which consisted of a number of punches

" set together in a frame, there being a separate punch for every
" hole that might have to be formed in the cards," "and when
" punching the holes in the cards the punches corresponding to
" the holes to be made were each knocked down separately by a
" blow." According to this invention the patentee places "above
" the tops of a number of punches, arranged as above described,
" a plate having formed through it a number of holes correspond-
" ing to the tops of the punches, so that when the heads of the
" punches are opposite the holes in the plate, the plate may be
" depressed without depressing any of the punches; but when
" the heads of any of the punches are moved so as not to be
" opposite their corresponding holes in the plate, when the plate
" is caused to descend, those punches that have been moved will
" be pressed down likewise, and caused to pierce the card." Each punch is attached to one arm of a bell-crank lever. "The other
" arms of the bell-crank levers form keys, and by depressing any
" of the keys and so turning the bell-crank on its centre, the
" punch to which the crank is connected will be moved, so that
" its head will not be opposite its hole in the plate."

A machine is described for punching several sets of cards alike. In this machine the punches are connected to needles, which are acted upon by the set of cards which is to be copied.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1860, August 4.—N° 1890.

TAYLOR, William, PENDLEBURY, Jeremiah, BAILEY, Thomas, and HARRELL, Richard. — Improvements in
" 'temples' used in weaving textile fabrics." "The object of
" this invention is to prevent or lessen the wear and tear of the
" dents of the reed caused by the beating up of the reed and
" lathe or slay against the cloth."

"The invention consists in mounting the 'temples' on hinges
" or pivots, and causing them to vibrate up and down, so as to
" raise or lower the cloth, in order that the same part of the dents
" of the reed may not always beat up against the cloth. This
" vibrating or moving up and down of the 'temples,' so as to
" present the edge of the cloth to different parts of the reed, may
" be effected in a variety of ways, for instance, by means of a
" heart wheel or cam revolving with the 'temple,' and acting
" against a fixed stud *or pin*; or the heart wheel or cam may be
" *placed on the end of the* emery roller or the cloth roller, and

" actuate a lever in connection with the 'temple;' or the gradually " increasing diameter of the cloth beam may be caused by means " of levers to raise the temples slowly up as the weaving pro- " ceeds. In fact, it will be evident that the raising and lowering " of the 'temples,' whether continuous or alternative, may be " effected by connecting them to any convenient and suitable " moving part of the loom."

[Printed, 8*d.* Drawing.]

A.D. 1860, August 6.—N° 1901.

SCHWANN, Frederick.—(*Provisional protection only.*)—The inventor says,—" This invention has for its object improvements " in dressing and stiffening fabrics and yarns. In dressing fustians, cords, velveteens, velvets, beaverteens, satin tops, twills, " satteens, calicoes, and other fabrics, a stiffening material known " as bone or animal size is employed; this size communicates to " the fabric or yarn an unpleasant smell. Now according to my " invention I treat the fabric or yarn with tar water, or liquor, " either mixed with the size or otherwise, by which the unpleasant " smell the size communicates to the fabric or yarn is entirely or " in great part removed."

[Printed, 4*d.* No Drawings.]

A.D. 1860, August 8.—N° 1919.

FIELDING, James, WHITTAKER, David, and CROASDALE, Benjamin.—The patentees say,—" Our invention con- " sists in certain improved modes of working the healds or heddles " of looms for forming the shed. We fix upon the tappet shaft " a single tappet for each set of healds and give it the proper form " for the desired dwell. The tappet is either internal or external, " and gives a to-and-fro motion to one or more levers, rack, or " bar, connected by one or more straps, bands, chains, cords, or " rods to the healds and heald boss shaft, so that the to-and-fro " motion of the lever, rack, or bar may be transmitted to the " healds and form the shed."

[Printed, 10*d.* Drawing.]

A.D. 1860, August 15.—N° 1976.

***HOLMS,* William, and OLDFIELD, Jabez.**—" *Improvements in machinery* or apparatus for weaving." " This inven-

"tion relates to the arrangement and construction of machinery "or apparatus which is designed to facilitate the simultaneous "production of two pieces of fabric in one loom. The first part "of these improvements has reference to a mechanical arrange- "ment for forming the inner and contiguous selvages of two "pieces of cloth woven simultaneously. Under one modification "this apparatus consists of a moveable brass ring, which is carried "by and rotates freely in a curved metal strap or collar, which is "formed in two parts that are keyed together. The backward "part of this strap is prolonged, and a slot is formed therein to "admit of its being attached to a convenient part of the loom "framing. The periphery of the ring is grooved, that is to say, "the faces of the ring form vertical flanges extending a little "above the solid portion of the ring, which forms a recess or "sunk part. A portion of this sunk part is flat to admit of the "ring resting in the strap; the other portion of the sunk part "forms a small and narrow spur wheel. The apparatus is "placed centrally in the warp, or midway in the width of the "same, and is fixed to a cross rail at the back of the loom fram- "ing. Rotatory motion is imparted to the apparatus from a "pinion on the crank shaft, which pinion gives motion to an "intermediate wheel in gear with the spur wheel of the ring "portion of the movement. Within the ring are arranged four "bobbins, which are disposed in the same plane; the spindles "of the bobbins extend across the ring, so that the bobbins lie "parallel to each other, and form two rows. The bobbin spindles "are fitted with helical springs and adjustable nuts for regulat- "ing the tension on the yarns or threads wound on the bobbins.

"There are two holes in each rim of the ring portion of the "apparatus, through which the yarns or threads from the "bobbins are carried outwards to the warp to form with the in- "terlacing of the weft the selvages of the contiguous pieces." "After the formation of the selvages the weft extending between "the pieces requires to be cut assunder, and the apparatus for "doing this forms the second part of our improvements. Under "one modification it consists of a circular knife carried in a "bracket, which is fixed to the breast beam of the loom im- "mediately beneath the web. Rotatory motion is imparted to this "cutter by means of pulleys, or other convenient means, driven "from one of the shafts of the loom. In lieu of a rotatory cutter "a bevelled, or wedge, or other shaped cutter or cutters may be

" arranged to sever the weft, to which either a horizontal, recipro-" catory, or other movement is imparted in any convenient " manner."

[Printed, 10*d.* Drawing.]

A.D. 1860, August 16.—Nº 1987.

MELLODEW, THOMAS, and KESSELMEYER, CHARLES WILLIAM.—This invention consists in "the manufacture of " velvets and velveteens by interweaving the floating face weft " threads up and down with three or more warp threads, such " floating weft threads consisting of silk or partly of silk in the " grey or undyed state."

[Printed, 1*s.* 8*d.* Drawings.]

A.D. 1860, August 24.—Nº 2039.

GREENWOOD, STEPHEN.— The patentee says:—" This in-" vention consists in adapting a vibrating lever or grife to a " jacquard engine for operating upon the uprights to which the " needles and harness of the loom are connected, as also the " healds, said lever being employed to produce a more uniform " shed of the warp threads than heretofore, motion being im-" parted to the aforesaid lever from the top shaft of the loom.

" Another part of this invention consists of an improved method " of connecting the pattern cylinders to the jacquard engine, " which I propose to effect by connecting said cylinder to the " bottom part of the framing of said engine by a cross spindle " on which are fixed two vibrating levers, carrying by their " upper ends the aforesaid pattern cylinder. I also fix a short " lever on one end of the aforesaid spindle, and connect said " lever with the top shaft of the loom by a toothed wheel formed " with the same number of teeth as the wheel which is upon the " top shaft of the loom, and gearing thereinto. By these means " I am enabled to press the several needles inwards when the " grife or vibrating lever aforesaid is clear of the hooked parts " of the uprights, and thus I avoid friction of such parts. It is " necessary with the above-mentioned arrangement to make the " needles with long eyes instead of round ones, and also to make " the uprights of different lengths, increasing gradually in length " as they approach the front of the loom, and in accordance with " the angle of inclination that the vibrating lever assumes when

" at its extreme range of action, the intention being to lift all the " uprights at the same time."

[Printed, 1s. 4d. Drawings.]

A.D. 1860, August 29.—N° 2090.

BROOMAN, Richard Archibald. — (*A communication from Edme Germain Bossuat.*)—(*Provisional protection only.*)—" Improvements in apparatus for manufacturing embossed or " figured fabrics in colours." " This invention relates to tambour frames and such like machines, and particularly to the " box which carries the threads (boîte plongeante), and to its appendages." " The inventor states that this system of weaving " has hitherto only been employed for the production of embroidery; that is, for making the thread of the weft float over " certain spaces of the fabric, but he proposes in the present invention to apply it to the production of various other figured " fabrics, in which the warp and weft threads cross and interlace " each other after the manner of the threads employed in the " weaving of shalloons, satins, cloths of various kinds, and so " forth. For this purpose, in place of raising all the threads, as " in the embroidery process, he raises the half, third, or other " part only, according to the fabric required, and thus obtains a " new result which is particularly well adapted for the manufacture of fabrics resembling Indian shawls and other costly " fabrics. In order to adapt the apparatus to this purpose, the " inventor modifies the form of the box in several ways. In the " first place he provides for employing any desired number of " thread tubes to each tooth, and adopts means for preventing " the several threads of each tooth from mingling together, and " thus rendering the execution of the work impossible. This is " the first part of his invention. He sometimes prefers, to prevent the mingling of the threads by forming a division or slit " along the front of the box, extending from one vertical slit to " another throughout the length of the box, so that the threads " may pass successively, and not together, into the vertical slit. " In the next place he adopts a device or devices for preventing " the small tubes from choking the vertical slits, and from rolling together when the box is not exactly adjusted. This he " sometimes prefers to accomplish by forming slightly curved " depressions, in which the several tubes lie when required to be

" at rest. He further, in some cases, removes the front of the " box below the rim or upper portion before-mentioned, to pre-" vent the warp threads from entering the horizontal instead of " the vertical slits, and so obstructing the work. Finally, he " adopts a contrivance for confining the thread tubes to their " places without interfering with their rolling motions. This he " prefers to do by forming upon their back ends rings or discs " which run in grooves in the back of the box."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 1.—N° 2114.

HOLROYD, WARD, and SMITH, SAMUEL.—" This invention " relates to means of governing or regulating the 'pick' in " looms wherein change shuttle boxes are employed," " and con-" sists in having the studs which carry the picking cones capable " of sliding up or down on their picking shafts, but without " turning round thereon, so as to be removed out of contact with " their respective picking tappets when not required to be " actuated thereby. This is effected by a lever." " And to pre-" vent stopping of the loom when two or more shuttles have " been picked in succession from one end, in consequence of there " being no weft across the weft fork, two bell-crank levers (or an " equivalent combination of levers) are hinged to the breast beam, " or near the weft forks, and are connected by rods to the afore-" said lever, and so arranged as to act upon the weft forks when " actuated by the said lever, and thus keep the said weft forks " clear of or out of contact with the catches of the weft hammers " or knocking-off levers which operate the strap guide."

The patentees also claim the application of a " catch box," " with the use of eccentric wheels, for giving a slow motion to " change shuttle boxes when turning."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1860, September 1.—N° 2118.

HARGREAVES, STEPHEN, HOLDEN, ROBERT, and NUTTALL, JAMES. — " An improved warping machine." The " improved warping machine is principally applicable to that " description of warping termed 'ball warping,' in which the " warps are made up into balls. The improvement consists in an " arrangement of apparatus, which is placed between two creels

“ of yarn, and is furnished at both ends with a series of eyelets, through which the yarn passes, and nearer the centre of the machine arrangements of pegs or guides are placed, whereby the width of the warp is contracted, and the yarn passes from both ends of the machine to the centre between a horizontal pair of rollers there arranged, and thence around a drum or pulley immediately beneath the said rollers. This pulley is formed higher at its flanches than in the centre, which is curved, so that it contracts the warp and gathers it from both creels, and brings it into a form ready for ‘ balling,’ which may either be effected by mechanism or by hand. An arrangement for marking the warp with color in certain lengths is also provided, by means of a worm and worm wheel and bevil gearing actuated from the central rollers; a marker being secured upon the bevil wheel shaft, and in rotating therewith passes through a color trough, and when so charged marks the warp at certain intervals regulated by the speed of the rotation of the bevil wheel shaft.”

[Printed, 10*d*. Drawing.]

A.D. 1860, September 3.—N° 2124.

MOORE, Henry, and NEWBERRY, Samuel.—“ Improvements in machinery for sizeing or dressing warps or yarns.”

“ The first of the said improvements is for taking up the slack or preserving the tension of the surplus yarn delivered from the back beams, in consequence of the continued rotation of the said back beams after the stoppage of the taking-up portion of the machine. The improvement consists in causing the yarn given off in excess upon such occasions to be depressed or deflected into a pendant loop between guide rollers or rods, by means of a tension roller resting or pressing upon the yarn. The loop or portion of yarn so temporarily deflected or depressed is straightened out, and the tension roller re-elevated upon the motion of the machine being resumed before the drawing of further supplies from the back or twist beams.”

“ The second of the said improvements consists in the application of a break to a wheel upon the pulley shaft or first cone shaft, or to any other shaft or wheel through which motion is transmitted to the working parts of the machine for the purpose of promptly arresting the motion of the machine.

“ *The third improvement* consists in the application of self-

" acting mechanism for traversing the cone drum strap back from " its final to its initial position upon the drums, by reversing the " motion of the worm shaft or screw by which the cone strap " guide is traversed for regulating the rotatory speed of the " receiving or taking-up beam upon which the sized warp is " wound in readiness for the loom.

" The fourth of the said improvements consists in the use of " duplicate or double rollers or rods in the place of single rods, " for opening or separating the threads or ends of the warps, each " of such duplicate or double rollers or rods revolving in contact " with its proper and separate portion of the divided warp which " travels over or under it."

[Printed, 1s. Drawing.]

A.D. 1860, September 3.—N° 2126.

DONISTHORPE, George Edmond.—(*Provisional protection only.*)—" This invention has for its object improvements in sizing " yarn or thread previous to warping. For this purpose the yarn " or thread, whilst in the cop or upon bobbins, is placed into a " receiver, in which a vacuum is then created by exhaustion; the " liquor or sizing is then permitted to flow into the receiver " amongst the thread or yarn, and is allowed to remain until the " thread or yarn is perfectly saturated. The yarn or thread is " then taken out, and the surplus liquor or sizing is thrown off " by centrifugal force, or by other suitable means."

[Printed, 4d. No Drawings.]

A.D. 1860, September 5.—N° 2137.

SCHUHMAN, Sigismund.—(*Provisional protection only.*)—" Improvements in looms and in the means of driving the same." The inventor says, " I regulate the tension of the cloth beam by " spiral or other springs instead of levers and weights, as hitherto " used, and I place a catch or other mechanical equivalent to put " the springs out of action when the beam is required to be " emptied. I work the shed by placing a toothed wheel about " the centre of the driving shaft of the loom, which wheel works " into another wheel of a different number of teeth to give motion " to a crank which gives motion to a pulley, on which a strap or " other similar means is fixed to work the heddles. I beat up " the slay by putting in each slay sword a kind of hinge or " apparatus to relieve the crank motion, the crank being connected

" to the tappet shaft and slay swords by bent levers; I regulate " the taking-up beam by what is technically called the sun-and- " planet motion. I work the picking motion by fixing a small " toothed wheel on the tappet shaft, which works into a larger " toothed wheel on the side frame, and to the said larger toothed " wheel I fix an ordinary nose bit to work the picking stick. I " drive the looms from the main shaft instead of the intermediate " driving shaft, by fixing a vertical shaft working into bevil wheels " on the main shaft, the said vertical shaft giving motion to a " horizontal shaft between the looms by means of bevil wheels " or other suitable gearing, the said horizontal shaft giving " motion to each loom direct by bevil wheels or other wheel " gearing, instead of the ordinary pulleys and straps. Or, instead " of the said vertical shaft, I drive the horizontal shaft by pulleys " and a strap from the main shaft, the wheel gearing being the " same as above described, which may be easily boxed off so as " to avoid danger of accidents."

[Printed, 4*d.* No Drawings.]

A.D. 1860, September 6.—N° 2149.

WALKER, Josephus.—(*Provisional protection only.*)—" This " invention relates to that kind of self-acting temples called " roller temples, the rollers of which heretofore have run in " ordinary neck bearings." The " improvements consist, firstly, " in having footsteps or centre bearings for the said rollers, or the " pivots thereof which are towards the fabric, or in the direction " of the pressure, so as to diminish the friction or drag; secondly, " in so constructing the caps and in arranging the rollers, when " three are employed, that the fabric will not rub against the " caps, but pass freely betwixt the rollers, and when two rollers " only are employed, that the fabric will not rub against the caps " on the delivery side of the temples; thirdly, the improve- " ments consist in applying a stay or support for holding the " caps in firm position when closed."

[Printed, 4*d.* No Drawings.]

A.D. 1860, September 6.—N° 2155.

OLDFIELD, Benjamin.—" Improvements in looms."

The patentee says " my invention refers to improvements in " those parts of looms termed the batten and shuttles, by which

" improvements I am enabled to pass more than the ordinary " number of shuttles moving in a horizontal plane, and in an " upright position through one opening in the warp. The batten " is constructed with sunk racks corresponding in number to " that of the shuttles I employ, and each shuttle is also furnished " on its under side with a similar rack; a pinion under each " shuttle, which pinion runs in upright bearings, allows each " shuttle to traverse the batten. The bearings carrying the " pinions also support the planks in which the shuttle, grooved " at each of its sides to fit the planks, travels. There would be " for one space two sets of planks, one on either side the space, " or for a number of spaces one more set of planks than the " number of spaces.

" My improvements in the shuttle consists in providing an iron " guard above the quill, which guard prevents the quill from " catching the warp as it is passing through. The wood from " the centre of the shuttle is consequently cut entirely away to " admit of the quill. The shuttle can be made in two parts to " admit of the part carrying the quill being removed and another " quill with silk of a different colour substituted."

[Printed, 10*d*. Drawing.]

A.D. 1860, September 6.—N° 2156.

LESTER, Aaron.—" Improvement in looms for weaving."

This invention "relates to that description of loom in which " several narrow fabrics are woven side by side at the same " time.

" The object of the present invention is to arrange and construct " the loom in such a manner that when, owing to the breaking " of a warp thread, or any other trifling accident happening to one " of the fabrics that are being woven, or when a shuttle requires " replenishing with weft, that portion only of the loom in which " the defect or want exists may be stopped without the necessity " of stopping all the other parts of the loom. This object is effected " by dividing the loom into sections, each of which is made capable " of working independent of the others, although all the sections are driven from one main driving shaft."

[*Printed, 10d.* Drawing.]

A.D. 1860, September 6.—N° 2157. (* *)

HERRING, George, and LICHTENSTADT, David.—(*Provisional protection only.*)—" Improvements in treating a certain " substance to obtain textile fibres and materials for paper- " making, and charcoal for gunpowder, pyrotechnic, and other " purposes."

The part of the Specification relating to the subject of this work is as follows:—" The substance I refer to is the wood and " bark of the mulberry tree." " The wood or branches are " removed from the bark, and the bark is then prepared in the " following manner:—The bark is dried in an oven or otherwise, " and when dry passed through fluted rollers of varying grooves;" " after this the bark is boiled in a solution of caustic soda (if " the bark be old and strong, steam and pressure facilitate the " process; we then wash this in warm water, in which a solution " resin soap is suspended, & after the fibre is well cleansed it " is washed in cold water, and when half dry is passed through " a solution of bisulphate of soda, by which the same acquires a " white color, and is nearly bleached." This can be used " when " carded, for spinning & weaving & other purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 10.—N° 2184.

THORNTON, Thomas, THORNTON, Edwin, and THORNTON, Joseph.—" This invention relates to looms for weaving " fancy textile fabrics."

" And the improvements consist in working or driving the " cylinder of the jacquard engine by shafting and gear, chain or " strap, and peg or tooth pullies, or other similar means direct " from the loom gearing, in such manner that when the loom " is reversed the jacquard engine will also be reversed, thereby " maintaining the arrangement of the parts, whether in forward " or reverse action. And to enable the attendant to reverse or " turn the loom backward more readily," the patentees " apply an " additional driving pulley with reverse motion, so as to change " the driving strap thereto, and thus reverse the loom by power." The patentees " also apply a catch lever for working the picking " levers, which is connected with the strap guide, so that on the " reverse or back action of the loom the picking levers are kept " out of contact with the picking tappets."

[Printed, 10d. Drawing.]

A.D. 1860, September 11.—Nº 2189.

GREENWOOD, James.—"This invention relates to looms for "weaving damasks, reps, or other figured fabrics for the production of which jacquard engines are employed; and the improvements consist in constructing, combining, and arranging "the mechanism thereof in such manner as to give time and ease "to the draught, or in turning the jacquard cylinder for change of "cards, and lifting or drawing the figure by causing a false pick "to be made, or no shuttle picked at such time of change," this is effected "by connecting the two picking tappets with a "rod, which is actuated by a cam or tappet and gear wheels of "suitable proportion, which receive motion from the tappet shaft "or from the crank shaft of the loom, so as to change the pick at "the proper time from one end of the loom to the other, or cause "two picks in succession to be made from one end, the second or "false pick being made at the time when the cards are changed "and when no shuttle is in the box. The tappet for drawing the "figure is constructed so as to lift more gradually, occupying the "time when no pick is being made."

[Printed, 10*d*. Drawing.]

A.D. 1860, September 12.—Nº 2202.

FREPPEL, Frederic Antoine Nicolas. — "An improved "preservative and sizing compound for sizing cotton, wool, linen, "or other yarns for weaving, and for dressing textile fabrics." The patentee claims—"The manufacture of the compound either "in the liquid or solid state, and either odorous or not, having "glycerine as its base, herein-before described, and the employment thereof for preserving and sizing cotton, wool, linen, or "other yarns for weaving and for dressing textile fabrics."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 14.—Nº 2222.

BURRELL, John.—(*Provisional protection only.*)—"Improvements in the manufacture of woven materials applicable as "crinoline and other articles of ladies' dress." The improvements "consist in the combination of certain materials for the manufacture of a stiff and highly elastic fabric, which is not liable to "crumble or retain pleats or folds into which it may be pressed

" while in use." The materials which the inventor combines for this purpose " are horsehair and mohair, or horsehair combined " with worsted or with worsted and silk, or other combinations of " those materials."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 14.—N° 2226.

TURNER, Luke.—(*Provisional protection only.*)—This " invention of improvements in the manufacture of elastic fabrics " relates to a mode of manufacturing elastic fabrics, whereby a " surface having the appearance of ordinary woollen cloth is produced. This is effected by the use of woollen yarns in combination with india-rubber stands in the manufacture of the elastic " fabric, and when the fabric has been woven in the ordinary " manner it is to be submitted to the operations of dressing and " fulling for the purpose of drawing out the fibres from the " woollen yarn, and fulling or felting them up, as in the manufacture of ordinary cloth.

" When the fibres have been drawn out so as to produce a pile, " the fabric is sheared and finished, and a cloth-like surface is " thereby produced."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 15.—N° 2239.

WAINWRIGHT, George James, and BRADBURY, Charles Timothy.—" Improvements in the manufacture of damasks and " similar fancy goods." The patentees claim,—"The use of two " or more threads of weft in weaving damasks, not twisted " together beyond what is unavoidable, both of the said threads " being shot over by one passage of the shuttle."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 17.—N° 2263.

CRAWFORD, Robert.—(*Provisional protection only.*)—" This " invention relates to the arrangement and construction of the " jacquard mechanism employed in weaving." It is " based to " a certain extent upon certain improvements in ornamental " weaving," for which the present inventor " obtained British " Letters Patent on or about the 18th day of August 1855, " *N° 1875. In the Specification* of these Letters Patent, a mode

" of weaving by means of jacquard mechanism is described, in " which the jacquard cylinder or barrel and endless chain of cards " is superseded, and in lieu thereof a pattern board or block " is used." " Under the present invention it is intended to " extend the use of these pattern boards by taking casts from " an original design, either in gutta percha, paper pulp, soft " metal, or other suitable material. These casts, when properly " mounted, may be supplied to manufacturers for producing " the figured fabric. In lieu of this mode of arranging the pat- " tern board a series of wires are arranged to pass through parallel " rows of holes formed in the upper side of a box or carriage. " The lower part of each wire is twisted, so as to form a series of " chain-like eyes, through any of which a horizontal wire extend- " ing through the sides of the box may be passed. In this way " the horizontal wire of each row may be passed through the " several eyes of the vertical wires, so as to arrange them at dif- " ferent heights, according to the sequence of colours on the de- " sign paper. Thus white is represented by one gradation of " height, blue by another, red by another, and so on throughout " the series; each row of vertical wires representing the arrange- " ment of the shed for one shot of weft."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 19.—N° 2274.

HOLGATE, William.—(*Provisional protection only.*)—" This " invention relates to an improved mode of winding the warps on " the warp beam of a loom. The beam is placed in bearings in " any suitable framework, and a decreasing speed according to " the strength of the warp is given to it as the warp is wound on " by causing a revolving friction plate to turn a pulley, which is " moved by degrees from the edge or outer circumference of the " plate towards the centre. The shaft of the pulley is geared with " the shaft connected to the beam, and as the speed of the pulley " decreases a corresponding effect is given to the beam."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 20.—N° 2292.

CASH, John, and CASH, Joseph, the younger.—" An im- " *provement in the manufacture of frillings to be applied to* " *wearing apparel.*" The invention " consists in forming such

" frillings entirely in the plain or figured ribbon loom, by weaving " them of the breadth required with two beads or selvages, one " on each edge, or by weaving one of the edges with a fancy edge, " and by weaving in, near that edge which is to form the base of " the frill, one or more loose threads, which, on being drawn, " gathers up the frilling into the breadth of plaits required."

[Printed, 4*d.* No Drawings.]

A.D. 1860, September 21.—N° 2300.

MURRAY, DAVID.—" The improvements have for their object " to facilitate the weaving in pattern."

The patentee says,—" In carrying out one part of my improve" ments, I apply in front of the heddles or harness a shaft or " frame carrying projections adapted when depressed to act upon " those of the warps desired, which for the time form the upper " row in the shed to depress them, so that the shuttle may carry " its thread over in place of under those warp threads.

" These projections may be formed of bent wire, or by the " insertion of plates of wood or other material, and they are " capable of being slided to vary the pattern and set in position " as desired, and may be applied to act upwards as well as down" wards.

" According to another, the second part of my improvements, I " apply to a barrel or cylinder projections capable of being va" riously set to act on levers connected to hooks, to draw those " hooks out of the way of being acted upon by a treddle or such " like instrument, so as to produce changes in the pattern.

" In place of a barrel or cylinder carrying projections, series of " plates or other surfaces adapted to act on the levers may be " employed."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1860, September 28.—N° 2354.

ASPELL, JAMES, BOOTH, EDWARD, and HURST, JAMES.— The patentees says,—" Our invention relates to that portion of " the power loom known as the letting-off motion, and is similar " in character to a motion for taking up the cloth, for which " Letters Patent have been previously granted to us, bearing date " *Twentieth March*, One thousand eight hundred and sixty, in

" which a spiral ratchet wheel was employed to regulate the tak-
" ing up of the cloth, and the pawls transferred from the smaller
" to the greater diameter thereof. Now, our invention consists
" in the employment and use of a spiral ratchet wheel for letting
" off the warp from the warp beam, but the action of the pawls are
" reversed, that is, carried from the greater to the lesser diameter
" of the spiral ratchet wheel by means of a bell-crank lever, one
" end being attached to a block or roller, and presses upon the
" periphery of the cloth beam, and following the decreasing
" diameter of the warp beam gives the necessary backward motion
" to the carrier, so that an equal amount of yarn is let off from
" the commencement to the completion of the piece, and the
" uniformity of the same is regulated."

[Printed, 4*d*. No Drawings.]

A.D. 1860, October 2.—N° 2375.

BULLOUGH, JAMES, and WALMSLEY, JOHN.—This invention relates to looms, and consists, " firstly, of an improved arrange-
" ment of mechanism or apparatus for stopping the loom when the
" shuttle after being delivered from one shuttle box fails to
" traverse to the other." The patentees " fix to the ordinary stop
" rod a number of fingers, which pass through holes in the
" slay bottom, and enter the angle of the shed. When the shuttle
" is not lodged, the said fingers advance towards and recede from
" the reed alternately as the slay moves backwards and forwards,
" and the stop rod finger is raised to prevent contact with the
" frog, but if the shuttle is lodged in the shed it will come in
" contact with one or more of the fingers, and prevent them ad-
" vancing towards the reed, and thus cause the stop rod finger to
" be depressed so as to come in contact with the frog, and stop
" the loom.

" Secondly, in the employment of a short shuttle guard at the
" side or front of the shuttle box, for the purpose of putting
" in and taking out the shuttle without interfering with the
" warp.

" And, thirdly, in fixing upon the shuttle race of the slay a
" number of pins or studs parallel with the reed, but at such
" distance from it as to allow the shuttle to pass, and at the same
" *time keep it in* a direct course."

[*Printed, 1s. 4d.* Drawings.]

A.D. 1860, October 3.—N° 2394.

HUGHES, Edward Thomas.—(*A communication from Jean Pierre Bourdelin.*)—(*Provisional protection only.*)—"This invention " consists in the application of metal rods or bars to the " healds or heddles of looms. Between the shafts or blades of " the heald, near each end," the inventor employs "in a vertical " position an adjustable supporting rod; it is composed of two " parts held together by a socket nut, the other ends of the rods " being hooked, screwed, or otherwise fastened to the shafts. The " socket nuts support a horizontal metal rod which traverses the " breadth of the heald, dividing the cords or threads into parts, the " ends of the rod being formed so as to pass over the supporting " rods a little above the middle of the heald."

[Printed, 6*d.* Drawing.]

A.D. 1860, October 8.—N° 2433.

KNIGHT, John Adams.—(*A communication from Etienne Calonnier-Peyron.*)—"An improved lathe for ribbon looms." The improved "lathe or batten for ribbon looms" is "intended " to weave double the number of pieces of ribbon that an ordinary " lathe of the same width would weave." In addition to the ordinary "lathe, constructed as usual," the patentee combines " another lathe or batten of the same description," which he places "vertically under and in an inverted position to the former " one, firmly uniting the two." The "reeds or spaces" "in the " lower batten are placed directly underneath the shuttle races of " the upper batten, and reciprocally the shuttle races of the lower " batten stand vertically underneath the reeds of the upper batten."

" In weaving figured ribbon when three, four, or more shuttles " are used," the patentee modifies the jacquard in such manner as to supersede or "do away with lost picks." "In order to " achieve this object" he has "contrived the means for picking " two or more shuttles simultaneously." "The modified jacquard" " differs from the ordinary one by having two griffs or leash boxes " instead of one, two cylinders, two sets of cards, and so forth; " also the wires are double-hooked, one hook on each side, so as " to be acted upon by either one or the other griff."

[Printed, 6*d.* *Drawing.*]

A.D. 1860, October 11.—N° 2479.

HANON, Etienne, Joseph.—This invention "consists in con-
" verting gluten by fermentation into a substance useful in the
" arts and manufactures," and which the patentee calls "vege-
" table albumine or albumen." "Among other purposes to which
" this vegetable albumen is applicable," the patentee mentions
" for sizing and dressing yarns and fabrics."

[Printed, 4*d*. No Drawings.]

A.D. 1860, October 17.—N° 2534.

McCRUM, Robert Garmany.—"This invention relates to a
" peculiar construction and arrangement of machinery or ap-
" paratus for punching or perforating the 'cards' used in con-
" nection with jacquard machines for producing figured weav-
" ing," "and consists in the application and use of electricity for
" the purpose of selecting the proper punches for making the
" perforations. In carrying out this invention it is proposed to
" use a series of electro magnets, the armatures of which are fixed
" to wires or pieces of metal which are so connected with the
" punches that when any one or more of the armatures is attracted
" to its or their magnet or magnets the corresponding punch or
" punches will be acted upon. The pattern may be designed
" upon a metal cylinder or other metallic surface, and this cylinder
" or surface by its rotation or motion may be made to establish
" the proper contacts for acting upon the punches in the desired
" order and grouping."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1860, October 24.—N° 2589.

KENYON, James.—(*Provisional protection only.*)—This "in-
" vention relates to that part of the loom commonly called the
" 'back rest,' over which the warp passes from the 'warp beam'
" to the healds." The "improvements consist in making the
" 'back rest' more or less elastic in the direction of the strain
" from the warp," which the inventor accomplishes "by means of
" springs or elastic packings placed between the 'back rest' and
" the bar or part of the framing to which it is attached, or by
" *making it* sufficiently thin and of a suitable material to cause it

" to have a springing action, or by the use of both means in " combination."

[Printed, 4*d.* No Drawings.]

A.D. 1860, October 24.—N° 2596.

GARNETT, Thomas.—(*Provisional protection only.*)—The inventor says:—" The nature of my invention consists in the application of elliptical and eccentric wheels for driving the crank " shaft of a loom, and in aid or in lieu of the tappets for working " the treadles and healds. In performing my invention I connect " the driving pulley to the tappet shaft, to which is fixed an " elliptical wheel gearing into a wheel placed eccentrically on the " crank shaft. The object of my invention is to reduce the speed " of the crank shaft during that portion of its revolution when " the shed is open for the passage of the shuttle. The treadles " are also worked by elliptical wheels or by elliptical wheels and " tappets, for the purpose of obtaining a dwell when the shed is " open."

[Printed, 4*d.* No Drawings.]

A.D. 1860, October 29.—N° 2636.

BLACKLIDGE, Robert.—(*Provisional protection only.*)—" Im-" provements in the preparation of materials for sizeing, dressing, " or finishing warps, yarns, textile fabrics, or paper." This " invention consists in treating flour of wheat or other cereal " grain, rice, sago, or other amylaceous substance or substances " by the application, or addition thereto, or admixture therewith, " of nitric, sulphuric, or hydrochloric acid (or other acid having a " similar effect), any excess of acid in the mixture being neutralized " by the addition of caustic soda, or of some other suitable " alkali."

[Printed, 4*d.* No Drawings.]

A.D. 1860, October 29.—N° 2645.

NEWTON, William Edward.—(*A communication from George Martin Gibson and Thomas Alexander Johnston.*)—This invention consists in an " improved let-off motion for looms." " The " warp passes upwards over a guide roller, whose bearings rest on " springs, so as to admit of the roller rising and falling as the " tension of the warp varies. The warp passes through a reed

" placed in the lathe, after which the weft or woof is thrown in " by the ordinary mechanism. A filling warp may also be used, " and passes upwards and between two guiding and nipping " rollers, and thence through the reed." " The whole warp, filling, " and weft, being in the form of cloth, is then wound upon the " cloth beam or roller, having a ratchet wheel upon one end, " with which engages a pawl for preventing the unwinding of the " cloth. The two rollers between which the filling passes are so " arranged with regard to each other that the filling will receive " a little binding force and nipping, which, together with the " tension acting upon the filling passing through the reed, will " serve to stretch or lengthen out the fibres or filaments of the " same." " The elastic breast roller acts upon a lever, which, by " means of suitable gearing, imparts motion to the warp beam; " the variation of the tension of the warp also causes a variation " in the movement of the lever, and a consequent variation in " the delivery of the warp from the beam."

[Printed, 10*d*. Drawing.]

A.D. 1860, October 30.—N° 2653.

MILLER, David Selkirk.—(*Provisional protection only.*)— This invention relates to apparatus " for stopping a power loom " whenever two or more threads of the warp are prevented by any " cause from shedding properly." " On the upper side of the " shuttle " the inventor makes " a slight hollow, and on the " lower side a similar slight hollow," in each of which he places " a spring or lever. When the warp sheds properly, these springs " or levers are not acted on by the threads, but should two or " more of the threads of the warp become so entangled from any " cause as not to shed, those threads remain in the middle, " between the upper and lower sheds of the warp, and the shuttle " passes either below or above them, when the entangled threads " press upon the spring or lever at the upper or lower side of the " shuttle, as the case may be, and in either case the effect is by " means of mechanism contained within the shuttle to push out " a stud and make it project from one side of the shuttle; as the " shuttle goes on, that stud strikes against a lever attached to the " latter, and by moving that lever shifts the position of a pin or " other suitable piece carried by the lathe. The ordinary position of " that pin or other piece is such as not to act on the disengaging

" lever," " but when shifted by the action of the stud, as already " stated, the forward stroke of the lathe makes the said pin or " other piece press against the disengaging lever so as to throw " the loom out of gearing."

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 2.—N° 2684.

LEONARD, JAMES, and LORENTZ, BERNHARD.—" Improvements in the manufacture of ornamented woollen fabrics when " chenille is employed." "The peculiar character of this invention consists in employing chenille at intervals as a means of " ornamenting fabrics otherwise woven of plain warp and weft."

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 6.—N° 2732.

SALISBURY, EDWARD.—(*Letters Patent void for want of Final Specification.*)—" An improved mixture or solution to be applied " to pickers, picking bands, straps, sole leather, and such like " materials in order to harden them and render them more lasting." " A quantity of lime is dissolved or mixed in about " twenty times its weight of urine; the soluble portion is then " drained off, and mixed with about an equal amount of oil. " After standing a short while, the materials to be operated upon " are placed in the mixture and stand for some days, the time " varying according to the mass and the kind of materials; after " being withdrawn from the mixture they are exposed to the " action of the air for a few days, and are then ready for use."

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 8.—N° 2747.

HUSSON, FRANÇOIS CHARLES.—(*Provisional protection only.*) —" These improvements relate to power looms," "and have for " their object,—

" 1ly, imparting an equal strain to the threads of the warp " web by winding on the warp beam simultaneously with the web " a woollen, linnen, or other suitable cloth or band."

" 2ly, rendering the motion of the batten more regular, and " thus prevent the same from imparting sudden jerks to the warp " web. For this purpose a sort of counterweight frame or compensating batten is adapted to the shaft or arbor of the ordinary

" batten, which counterweight or compensating batten constantly " equilibrates the effect of the real batten. Besides the reed is " mounted in a special frame swinging by means of gudgeons in " bearings situated in the swords of the batten, to which latter " this frame is further connected by an elastic medium, such as " a piece of india-rubber or other suitable sufficiently elastic " material."

" 3ly, obtaining a regular winding-up on the cloth beam, the " fabric being drawn towards and wound on this latter by being " pressed between the surface of a revolving roller, and an endless " band moving by other revolving rollers suitably connected to " the first-mentioned revolving roller and to the cloth beam, the " motion of the whole being made dependant to that of the batten " by suitable gearing and ratchet wheel with clawkers."

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 8.—Nº 2750.

HENSON, William Frederick.—" Certain improved fabrics " made entirely or partially of alpaca or mohair." The patentee claims,—" Firstly, the manufacture of fabrics the back of which is " of alpaca or mohair, or a mixture of alpaca or mohair with silk " or other materials, and the face of which is silk or satin faced, " which may be either figured or plain.

" Secondly, the manufacture of velvet the back of which is of " alpaca or mohair, or a mixture of either silk, alpaca, or mohair, " and other materials, while the pile is of silk.

" Thirdly, the manufacture of velvets entirely of alpaca or mo-" hair, or in combination, or mixed with silk or other materials."

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 13.—Nº 2784.

SACCARDO, Luigi.—This " invention consists, first, in an im-" proved mode of forming and employing (as a substitute for th " ordinary cards of jacquard looms) an endless paper card per-" forated with holes in a peculiar manner so as to admit of a re-" duction in the size of the holes composing the pattern, and to " compensate for the contraction and expansion of the paper " produced by hygrometric changes of the atmosphere.

" *Secondly*, in constructing the batten or rocking frame with " *levers and guide pins* (used in combination with guide holes in

" the endless card), and with an apparatus or frame employed " instead of the ordinary square perforated cylinder or roller of " jacquard looms."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1860, November 13.—N° 2786.

CLARK, William.—(*A communication from Benôit Barlet.*)—These improvements relate to looms for weaving ribbons having two rows of parts carried by the batten. The cramps for guiding the shuttles "are but half the ordinary length, with the exception " of the end ones of each row of parts, which should always be of " the same breadth as the length of the shuttle; this arrangement " allows of the battens being considerably shorter than in ordi- " nary." The shuttles are actuated by wheels and a rack, which receives motion from a toothed wheel on a spindle to which the shuttle drivers are connected by a cord and drum. The levers for working the jacquard apparatus are actuated by a cam so formed that a dwell is caused during the necessary time for the passage of the shuttle, " so that the opening of the shed may be " considerably reduced," and "by reducing the height of the " shed the two rows of parts may be brought near to each other." " The shed is effected, one half by a rising motion, and the other " half by a descend ing movement." It is proposed to make the reels which carry the warp threads " to turn on axes by means of " an escapement regulating their motion, similar to those used in " clocks." To avoid " the numerous stoppages for changing the " spools which carry the weft" the patentee substitutes "a reel " for the ordinary spools, which will hold much more silk, and " also permit of the weft threads always entering the eye of the " shuttle in the same direction, thereby preventing breakage. " The ordinary shuttle is replaced by a shuttle composed of two " parts; the one is fixed and has rack teeth, the other, forming " the front, is movable, & contains the reel on a vertical " axis."

[Printed, 2*s.* 4*d.* Drawings.]

A.D. 1860, November 14.—N° 2787.

BROOKES, William.—(*A communication from Julius Boeddinghaus.*)—" Improvements in means or apparatus employed in " weaving." " The improvements relate, first, to means or

" apparatus for operating the leaves of healds or heddles to " facilitate the obtaining changes of pattern. For this purpose, " in place of all the jack levers supporting the respective heddles " being connected directly to heddle levers so as to be at all times " actuated in the motion of such heddle levers," it is proposed " to operate upon only two (though it may be other number) of " the heddles in such manner, whilst the jack levers of the other " heddles will each be connected to a seperate rod, having a hook " or catch formed capable of being in connection with and " operated by a knife edge or other suitably formed surface upon " a sliding plate, which is also formed with a projection capable " of being operated by two or more heddle levers, operated by " eccentrics or tappets to give motion to such plate in one " direction, and thence by the hooked rods, for the time in " connection therewith, to the healds desired. The sliding plate " is borne in the opposite direction by a spring, and the hooked " rods are moved into position to be operated by the knife edge " of the sliding plate, in the order desired by studs or projections " from series of plates or bars carried by a barrel, to which is " given a suitable step by step motion.

" The object of the improvements is, secondly, when weft fails " to throw out the shuttle in operation, and thereby save the " time of its removal by hand. For this purpose the front of the " shuttle box in place of being fixed turns upon an axis at its " outer end, and by preference it is made in two parts, jointed " and elastic at such joint. When weft fails, the weft fork " apparatus acts upon an arm of a rod forming an axis, upon " which is fixed another arm, which then comes in the way to " take hold of a knife edge or projection of a lever connected to " the moveable part of the box to draw it back, by which the " inner end of the box will be closed, and the shuttle which has " been working will be directed into a receiver. At other times " a spring or springs keeps the moveable front and parts operating it in position. The rod forming an axis also at the " same time acts by another arm upon the regulator."

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1860, November 21.—N° 2847.

MARLAND, JOHN.—" Improvements in warping and sizing " *yarn and thread.*" The patentee says:—" I take the yarn

" from the cops or bobbins or from long spools from the winding " machine with any given number of threads required. When " warped from the bobbin or cop I place the creel in front of the " reel and pass the yarns through a reed, then under and over " two rollers, which are made to perform two duties,— first, to " prevent the yarn or threads from cops passing on to the reel " loose when they break or come off at the bottom ; second, these " rollers are made to count or measure the number of yards as " the yarns pass over them, as is well understood in other classes " of machinery, and here the warp is marked by machinery by a " ruler or marker, which is caused to descend into and mark the " yarn by the counting apparatus. These rollers are driven from " the reel by a cone or otherwise which increases their speed as " the coil enlarges upon the reel and keeps the tension uniform, " the reel gaining more or less as the stretch of the yarn requires. " When I warp from the long spool I connect the delivery of the " yarns from the long spool in place of the intermediate rollers, " as above described, and only use them for measuring the yarns " as they pass on to the reel, and are turned by the yarns passing " under and over them.

" The next improvement consists in placing the warp upon the " reel in a condensed or contracted form by winding in sections " formed on the reel by flanges applied at short distances apart " on the reel."

" My object in contracting the warp on the reel is that it " enables me to use sizeing rollers of much narrower compass, " suitable in each case for a section on a reel."

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 23.—N° 2872.

COUPE, John.—(*Provisional protection only.*)—" This invention " relates to that portion of the power loom known as the 'shed- " 'ding motion,' by which the healds are actuated." " Upon " the tappet shaft or other convenient part of the loom a crank is " applied, which as it rotates gives motion by means of a con- " necting rod, and another crank or arm to pulley or drum, " heart-shaped, eccentric, or otherwise, to which the heald bands " or straps are attached, so that as the crank on the tappet shaft " rotates, an oscillating movement is given to the said drum or " pulley, and the healds are alternately raised and lowered, and

" the 'shedding' of the warp is thereby effected; one pulley " working each pair of healds without the employment of " 'treddles.' "

[Printed, 4*d.* No Drawings.]

A.D. 1860, November 23.—N° 2877.

IZOD, EDWIN, and BEECH, ROBERT.—(*Provisional protection only.*)—This " invention consists in a peculiar means of weaving " double stay cloth with the requisite hollow spaces for receiving " the bone, steel, and other fillings, together with a lining or " interior surface produced of wool, whilst the requisite strength " of the two fabrics is obtained by using two warps composed of " linen, cotton, or other vegetable fibre, the inner of the two " fabrics being wefted with woollen or worsted yarn, and when " preferred, both the back and the front warps may be wefted with " woollen or worsted yarn."

[Printed, 4*d.* No Drawings.]

A.D. 1860, November 24.—N° 2888.

DORGEVAL, POLYDORE.—"This invention consists in improve" ments in the mechanism employed in the manufacture of silk " and other fabrics." In the drawings a hook is shewn which alternately takes hold of two bars, to which are connected the heddles; on the back of the hook is a small roller carried by a pin, the roller works in a groove, which is made semicircular at its upper end, for the purpose of moving the hook from left to right and right to left. Another roller gives motion to the shuttles, this roller strikes against dogs, "these dogs are con" nected to arms which are connected by cords to the pickers." A slide is hinged to the hook, and to the slide is linked a treadle " which serves to give motion to the entire loom."

[Printed, 10*d.* Drawings.]

A.D. 1860, November 26.—N° 2892. (* *)

HADWEN, JOHN WILSON.—" Improvements in the treatment " of silk waste, waste silk or silken fibre, and in the manufacture " of yarns and tissues from the same, whether alone or in admix" ture with other materials."

This invention " consists of mixing in one or more of the pro" *cesses for preparing* fibrous materials to be spun (such as the

" scribbling, carding, or drawing processes) of silk waste, waste " silk, or other silken fibre of different colors and suitable pro- " portions of each color to produce mixed hues or compound " tints in yarn or fabrics of an ornamental description; the " tints or hues thus obtained being either regular and uniform, " delicately clouded, mottled, or parti-colored, according to the " relative proportions of the various colors mixed together."

The patentee states that he also mixes or blends silk waste or waste silk with other materials in the manufacture of yarn or fabrics at any of the processes of preparing fibrous materials to be spun, or at one of such processes, repeating it at another, " as will " be found desirable in practice;" and that by " the aforesaid " process " he produces " a novel description of cloth for covering " umbrellas and parasols, the peculiarity of which consists in its " being made wholly or partially of yarns made as herein-before " described, or of the said yarns doubled with some other kind of " yarn or material.

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 26.—N° 2893.

PEARSON, William, and SPURR, William.—This " in- " vention consists in means of operating the treadles for working " the healds or heddles of woollen power looms." Instead of giving motion to the treading tappets by gear wheels, the patentees " employ a star wheel and noggin plate," " and thereby obtain " a greater number of treads in one revolution of the tappet " shaft." They " also make the nibs of the tappets portable or " separate from the tappet plates, and in sets suitable for one " tread, two treads, and so on, whereby they may be readily changed " for any desirable order of treading."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1860, November 28.—N° 2917.

SIDEBOTTOM, John.—(*Provisional protection only.*)—This invention relates to reeds and apparatus " for forming the lease or shed " in machines for sizing, dressing, warping, and weaving." The yarn is caused " to pass between the dents of a circular reed, or in " circular grooves made in a shaft which is carried round by the " yarn, or turned round from any revolving part of the machine; " *these dents separate* the yarns from each other, but they are

" not sufficiently deep to break the yarn when a knot adheres " thereto. When the lease or shed is to be taken, a second in- " strument somewhat like the circular reed is used. This consists " of a series of washers on a shaft, which washers are separated " by pieces of different heights placed alternately. When this " instrument is brought into operation the pieces of different " heights acting on the yarns separate each alternate yarn from " the other, when the lease can be taken by introducing a cord or " stick between them as usual; the above may be used in com- " bination or independently of each other.

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 29.—N° 2936.

COLE, THOMAS, and GARDNER, DAVID.—" Improvements in " looms for weaving ribbons and other fabrics." The patentees say :—" The usual method in weaving ribbons is to form one shed " or opening in the warp for the ground, and afterwards to form " another for the figure or facing upon the ground. Now, our " invention consists in applying levers and slats, or shafts of wood, " iron, or other suitable materials under the ordinary jacquard " machines, so as to form two or more sheds or openings in the " warp at the same time, by means of extra length of tugs or " double-knotted leash or strapping thread lifted by the aforesaid " levers and slats, so that a figured ribbon, the figure on which is " produced by the shute or the weft, can be made at a single " motion or shute. Also two separate ribbons can be made in each " space of the batten at the same time, or two ribbons can be " woven together as one fabric."

[Printed, 10*d*. Drawing.]

A.D. 1860, December 1.—N° 2955.

CLARK, WILLIAM.—(*A communication from Joseph Matter.*)—(*Provisional protection only.*)—" This invention relates to the appli- " cation of regulators (so called) to looms. These regulators con- " sist of four cylinders of wood covered with cloth, or ridged " iron." In the drawing two pairs of cylinders are shewn, one pair above the cloth beam, the other pair above the yarn beam. " The cylinders are set in motion by the foot of the operator by " means of an iron wire," which through levers actuates a catch *gearing with a ratchet* wheel; this wheel is connected by means off gearing with toothed wheels, to which are fixed one cylinder of each pair. The other cylinders are kept in relation to the first mentioned cylinders by means of levers and springs. The cloth beam is set in motion by a crossed strap from one of the cylinders. The action of the strap may be regulated by a weight. The motion of the cylinders is also regulated by a binding stud pressing against the axis of one of them.

[Printed, 6d. Drawing.]

A.D. 1860, December 11.—N° 3037.

HAMERTON, JOSEPH. — (*Provisional protection only.*)—The object of this invention is to manufacture "zebra cloth or triple "cloth" in a power loom. The inventor employs "the ordinary "crank shaft and connections, with driving pullies, for giving "motion to the lay or batten, and on each end of the lay a series "of change shuttle boxes, either rotary, oscillatory, or rising and "falling, which have motion given to them by levers and rods or "hooks actuated by the jacquard apparatus, or other indicating "means, so as to change the shuttles at every pick, such indicating "apparatus being so arranged as to bring the shuttle, which "contains the proper colour of weft according to the design of "fabric, into line with the bed of the lay or batten at the proper "time for picking.

"The healds or heddles are also arranged or geared up in connection with the jacquard apparatus, and actuated thereby in "such manner as to open the shed or sheds at proper times to "receive the shoots of weft for producing the said triple cloth."

[Printed, 4d. No Drawings.]

A.D. 1860, December 20.—N° 3127.

CLARKE, JAMES, the younger.—(*Provisional protection only.*) —"This invention relates to certain improvements in warping, "which consist in the employment of two flat plates made to "work in each other; said plates having forks screwed therein "for the half beers to run through." The inventor also proposes "employing bent levers or arms for the purpose of raising alternate forks; said levers or arms being connected to a horizontal "bar, by which they are to be actuated by suitable mechanical "contrivance."

[Printed, 4d. No Drawings.]

A.D. 1860, December 20.—Nº 3130.

SCHWANN, Frederick.—"This invention has for its object "improvements in dressing and stiffening fabrics and yarns, and "in preparing the cementing and stiffening materials used. In "order to prevent fermentation and decomposition, and the "injurious effects consequent thereon in the stiffening and "dressing materials applied to fabrics and yarns (such as animal "glue or size, or paste, or other vegetable dressing or stiffening "materials), tar water, or tar liquor, or carbolic acid, is used in "combination with the animal and vegetable stiffening and "dressing materials."

[Printed, 4*d*. No Drawings.]

A.D. 1860, December 22.—Nº 3144.

PETERS, Charles. — (*Provisional protection only.*) — "Improvements in looms used in the manufacture of ribbons and "other fabrics." This invention relates to apparatus "for the "purpose of winding up the ribbon when made, and regulating "the number of shoots the woof shall lay across the warp of the "ribbon."

The "invention consists in a machine self-acting, that is to say, "worked by the motion of the loom, and consisting of levers "(the lower one balanced by a weight), and rollers under one "and round the other of which the ribbon passes, and the number of shutes of the woof is regulated by the levers and a "ratchet, checked by two catches, one of which is in connection "with the levers, whereby the ribbon at the different spaces of "the loom can be made at different rates of speed.

[Printed, 4*d*. No Drawings.]

A.D. 1860, December 24.—Nº 3157.

FANSHAWE, John Americus, and JAQUES, James Archibald.—This "invention of improvements in the manufacture of fabrics with rubbing or friction surfaces, relates to a "novel mode of manufacturing fabrics which may be used as "towelling or as medical rubbers. The invention consists in "introducing into the fabric during its manufacture strands of "vulcanized india-rubber warp threads, either covered or uncovered, but in a distended state, so that when the rubber

" strands are allowed to contract they will draw or loop up the " non-elastic warp threads and thereby produce a corrugated or " looped surface." The inventors " sometimes propose to in- " troduce or weave into the fabric tufts, bunches, or strands of " horsehair, or some other analogous material or fibres, which " may be considered applicable to form a rubbing or friction " surface, and when these fibres are cut or divided and the india- " rubber strands are allowed to contract, a rubbing or friction " surface will be produced."

[Printed, 6*d.* Drawing.]

A.D. 1860, December 29.—N° 3185.

BRINTON, JOHN, and LEWIS, JOHN.—" Improvements in the " manufacture of pile carpets, rugs, and other pile fabrics." The patentees claim, " the manufacture of pile carpets, rugs, and " other pile fabrics by the combination therein of the processes " adopted when manufacturing what is commonly called patent " Axminster or chenille pile fabric with that adopted when form- " ing the pile surface from dyed or printed pile yarn over wires."

[Printed, 4*d.* No Drawings.]

A.D. 1860, December 29.—N° 3186.

CLARK, WILLIAM.—(*A communication from Michel Antoine Graziani.*)—" This invention relates to the manufacture of a new " kind of fabric, intended especially for application as curtains, " window and other blinds, floor coverings, screens, lamp and " other shades, and similar purposes. This fabric is formed of " contiguous strips of wood, reeds or rushes, rattan or cords of " cotton thread, wool, silk, and other material, suitably stiffened, " or of other stiff or rigid strips, united parallel, the one with the " other by strings, cords, wires, or other flexible substances. " The rigid strips may be of a round, flat, elliptical, or other form, " and may be placed at greater or less distances apart according " to the strength to be given to the fabric or the amount of space " required in it for ventilation. The rigid strips constitute the " weft and the flexible wires or cords the warp of the fabric."

[Printed, 6*d.* Drawing.]

1861.

A.D. 1861, January 10.—N° 64.

NEWSOME, Charles.—" Improvements in looms for weaving " ribbons and other fabrics." This " invention consists in con- " structing such looms with fixed battens, and in making the " slays or reeds movable, and moving the same for the purpose " of striking up the shute or weft, whereby a quicker motion of " the shuttles can be obtained, and a considerable saving of " motive power is effected."

[Printed, 10*d.* Drawing.]

A.D. 1861, January 11.—N° 70.

SENIOR, Charles.—"The object of this invention is to con- " struct, combine, and arrange mechanism or apparatus so as to " constitute a machine applicable for tentering or stretching and " drying fabrics of any widths required; also, drying warps, " yarns, wool, or fibrous substances of any description. It con- " sists of a series of rollers of lengths exceeding the widths of the " widest fabrics required to be stretched and dried, supported on " suitable framework, and a pair of endless chains with hooks or " clips to hold on the edges of the fabrics to be stretched and " dried, or on endless cloths for carrying warps, yarns, wool, or " other fibrous substances to be dried, pass over or around said " rollers. Also a series of guide rails or stretching bars which " are capable of being set or adjusted simultaneously by screws " and gearing, or equivalent means, to any adjustable distance " apart to suit the widths of fabrics or endless cloths. On the " said chains are friction pullies which bear against and run on " the said rails or bars and enter longitudinal grooves formed in " the rollers, by which the chains are carried or driven forward " when motion is given to the said rollers. Underneath the " machine is a perforated box or chamber to receive and distribute " hot air."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1861, January 11.—N° 87.

MUIR, Matthew Andrew, and McILWHAM, James.—This invention relates to power looms, for weaving check or similar goods. "In one arrangement of check looms, where two or more " colors are required in the pattern, the raising, retaining, and " lowering of the shuttle box is regulated by the action of the " pattern barrel pins through the intervention of two catches or " detents so arranged that the one actuates the other before the " change in the position of the shuttle box is required. The " mere raising of the shuttle box is effected by a lever connected " with a crank on the outside of the second motion or tappet " shaft, and at every revolution of this shaft the shuttle box may " be raised to its higher position in accordance with the pins " upon the pattern barrel; but when it is necessary that the " shuttle box should remain in its lowest position for a longer " period, the lifting or disengaging catch is withdrawn either by " the presence or absence of the barrel pins just a sufficient distance to clear the end or lifting snag of the aforesaid lever."

"Another part of this invention consists in an improved mode " of working the heddles for producing the plain and twilling " actions," a " small frame is erected in the open space beneath " the heddles, and a system of levers is so arranged that each is " directly connected to its respective heddle. From these levers, " which are carried by the small frame, an equal number of levers " are suspended at their upper end, and their centre of suspension is somewhat out, the centre line running through each, " which causes these levers to have a constant tendency to hang " towards their actuating tappets. Upon each of these suspended " levers a small projecting catch is formed on that side nearest " the treadles, and when these catch levers are actuated by their " tappet they are caught and retained by a brander or knife-edged projection on the one end of each of the two treadles, which " are kept against the cams by a compensating lever overhead, " and connected by a rod to the one, and a spring to the other. " Alongside and in front of the loom, at right angles with the " catch levers, a small tappet shaft is fitted, and is capable of " being moved on end by the action of the lever or levers connected with the pattern barrel rod outside of the main framing, " and this small shaft is driven to corrrespond with the motion " of the treadles by an adjustable train of wheels." "Instead " of the former arrangement of duplex tappets, a small barrel is " substituted in their place for actuating the catch levers. This " barrel is divided into six, five, four, or other number in straight " lines, *and a series of pins* is inserted in the periphery to suit any "number of heddle leaves for the particular twill, figure, or "plain work required." "This invention also includes a novel "arrangement of stop or brake motion, and consists in attaching "to the usual brake spring in the front of the loom the brake "lever through the intervention of a connecting rod and helical "or other spring, which by jam nuts can be accurately adjusted "to the required tension, and when in its proper working position "just relieves the brake from off the fly wheel."

[Printed, 1*s.* 6*d.* Drawings.]

A.D. 1861, January 12.—N° 88.

BULLOUGH, William.—"Improvements in looms for weav- "ing." This "invention consists, firstly, in an improved arrange- "ment of parts for working index machines; the hooks that are "selected by the two chains of lags or other usual apparatus are "raised alternately by a vibrating lever, to which are connected "the catches for working the barrels, around which the chains "of lags are taken.

"And, secondly, in an improved letting off motion, which "consists of a tappet on the crank shaft acting on a lever "connected to a break acting on the warp beam, by this "means the warp beam is held rigid during the beating up; the "above parts are used in combination with a moveable breast "beam. When the shed is crossed the breast beam yields to "allow the shed to open, and when the shed is closed the breast "beam is drawn back by a spring or weight, the force of which "is regulated according to the tension given to the warps."

[Printed, 10*d.* Drawing.]

A.D. 1861, January 16.—N° 127.

BATLEY, John.—(*A communication from Charles Lezaire.*)— "An improved manufacture of belting." The patentee claims,— "the manufacture of belting by the plaiting together or inter- "weaving of strands of leather, whether alone or in combination "with textile or other strands."

[Printed, 6*d.* Drawing.]

A.D. 1861, January 18.—N° 141.

BATES, Isaac.—(*Provisional protection only.*)—This invention *relates to preparing* and sizing warps.

The inventor says :—"In the warps prepared in the ordinary " tape machine a defect and inconvenience has been long expe- " rienced from the adhesion amongst the threads of the warp, " occasioning, when it comes to be woven in the loom con- " siderable breakage of the threads." "My invention consists " in obviating this defect by separating absolutely the threads at " the time that the warp is being wound on to the warp beam in " the tape machine. This I effect by inserting a number of rods " through the yarn."

[Printed, 4*d*. No Drawings.]

A.D. 1861, January 22.—N° 169.

WHITE, GEORGE.—(*A communication from Casper Honegger.*) " An improved warping and beaming mill." "The mill con- " sists of a strong frame, in which the arbor of a horizontal reel " is caused to revolve by means of suitable gearing; the reel is " formed of smooth wooden bars fixed at the required distances " apart on the periphery of a suitable number of circular metal " washers parallel to each other, and through the centre of which " passes the arbor of the reel; and in order to allow the reel " while partaking of the revolving motion of the arbor to glide " with a suitable traversing motion over the said arbor, this latter " is provided with a longitudinal groove, in which is inserted a " guide piece fixed to the washers. At the end of the reel at " which the winding-on commences, its diameter is larger than that " of the opposite end, part of the length of the reel forming at the " said larger end a sort of truncated cone, in order to cause the " thread coiled up thereon to glide from this part on the remainder " or cylindrical part of the reel. The arbor of this latter passes " through a boss with which the second washer, beginning from " the conical end of the reel, is provided; to the opposite end of " this boss is fixed a pinion in gear with a tooth wheel, in the " centre of which forms a female screw or nut, in which is in- " serted a corresponding male screw, which latter may at pleasure " be kept in the fixed position, or be allowed to revolve in the " direction required for causing the reel to traverse in the oppo- " site direction of its conical end; while this screw is kept in its " fixed position, the reel while revolving is caused at the same " time to traverse in the direction of its conical end. The threads " or yarns proceeding from the bobbins situated in a suitable " creel are *drawn through* a moveable lease reed and heck, and "are made to coil on the reel, beginning towards the top of the "truncated cone end of this latter, from which cone, by the "traversing and revolving motion of the reel, the coil may glide "on the cylindrical part of the reel. A tell-tale is connected to "the arbor of the reel, and in order that after this latter having "traversed to the required distance the same may be caused to "recede, provision is made for allowing to stop the motion of the "reel, and cause the screw over which this latter had traversed, "and which screw had remained stationary, to revolve in the "direction requisite for causing the reel to recede and wind up or "coil another portion of the warp thereon. The beam on which "the warp is to be wound, after proceeding from the reel, is "situated behind and underneath this latter, and is fixed with "its trunnions in a revolving axle turning in suitable bearings "in the frame of the mill, and in gear with the other moving "parts."

[Printed, 10*d*. Drawing.]

A.D. 1861, January 23.—N° 178.

SMITHIES, David, and JACKSON, John.—(*Provisional protection only.*)—"Improvements in the manufacture of healds for "harness for weaving." This "invention consists in dispensing "with the knot or knots forming the eye of the heald, and in "so constructing healds that when the eye and the clasps are "worn the threads forming the heald can be moved to dis- "place the portions that are worn, and replace them by other "portions that are not worn, or the thread forming the eye can "be moved separately from the threads forming the clasps."

[Printed, 4*d*. No Drawings.]

A.D. 1861, January 23.—N° 182.

CLARK, William.—(*A communication from Louis Bonard.*)— "Improvements in circular looms for weaving hats and other "articles." "This invention consists, 1st, in certain devices for "carrying, operating, and guiding the warp holders, and in a "peculiar manner of attaching the warp to the warp holders. "2ndly, in certain devices for laying the woof in circular form. "3rdly, in certain devices for forming the crown of the hat." "The warp, cut in suitable lengths, is stretched diametrically "*across the machine*, and secured to india-rubber rings upon the

" keys or warp holders, an odd number of said keys, and about " one-eighth part of the whole, being thus supplied. The inner " ends of each length of the warp are secured to a hook on the " top of the central shaft. The woof is then taken from the " bobbins and conducted through the eyes and through apertures " in the woof carriers, or crescents" "to the centre of the " machine, where it is secured to the top of the shaft. The heads " of the woof carriers are now adjusted with their points near the " centre, and the warp frame set in motion, and motion thereby " imparted to the bevil and rim wheels," "which have previously " been supplied with a rim of any desired pattern. In passing " over this rim such of the sliding pins as are received by the " cavities in the same impart no rising motion to their keys, but " suffer the latter to remain within the slots of the lower ring, and " thus pass beneath the slideways and the bracket bar of the woof " carrier. Such of the sliding pins, on the other hand, as come " in contact with the projections of the rim are thereby elevated, " and raise their keys sufficiently to deposit their projecting lugs " upon the lower end of the slideway, so that the continued motion " of the warp frame carries the said keys up the slideway, by means " of which they are elevated completely within the slots of the " upper ring, and thus enabled to pass above the woof carriers, " after which they descend again into the slots of the lower ring. " By these means a strand of woof is laid by each woof carrier at " every revolution of the machine, the point of the crescent serving " to compact it between the threads of the warp; tappets impart " an intermediate motion to toothed wheels, which act upon the " screw operating the sleeve-piece, and gradually retract the point " of the crescent to suit the increasing diameter of the web. As " the diameter of the web increases, new threads of warp are " inserted by securing their respective ends to the unoccupied " india-rubber rings and the edge of the web, and the work progresses until the diameter of the web slightly exceeds that " desired for the horizontal top of the crown (the tip). The form " or block is now run up by means of the hand wheel operating " it, until it raises the web slightly in the centre." A "bell" " is now placed upon the web concentrically above the form or " block, and secured by the hand screw for that purpose, the web " projecting slightly beyond the sides of the bell, and the catch is " turned down," a cog wheel "causing the rotation of the warp " frame to *gradually elevate* the form or block through the medium

" of toothed gearing, pullies, and endless chain-threaded sheath " and nut for that purpose, which forces the web up into the bell, " compressing it tightly around the form or block as fast as laid, " sufficient of the web remaining outside the bell for the laying " mechanism to act on."

[Printed, 8*d*. Drawing.]

A.D. 1861, January 25.—N° 200.

HADWEN, GAYLARD. — (*Provisional protection only*.)—" Improvements in the double-lift jacquard machine, as applicable " to power looms." The inventor says,—" Instead of employing " one card cylinder and one set of hooks and needles, as hitherto " adopted, I employ two card cylinders and two spring boxes, and " one set of hooks and needles, each card cylinder working half " the hooks and half the needles. The cards instead of having " two picks on each card, and each card working twice, I put only " one pick on each card, and work them alternately, whereby I " am enabled to work at a greater speed."

[Prnted, 4*d*. No D rawings.]

A.D. 1861, January 30.—N° 245.

ARCHER, WILLIAM.—These improvements relate to jacquard machines. The patentee says,—" Instead of making the eye " of the needle round, and causing it to act upon the hooked " part of the hook, as hitherto adopted, I make the eye of an " oblong shape; and in order to release the hook from the knife " of the grife, I cause the eye, when the needle is pressed by the " card, to act upon the spring or turn up of the hook, which is " made longer for the purpose, and allows the bottom of the " hook to bed itself upon the bottom board before the hook leaves " the knife, so that when the knife has left the hook the latter " springs back of itself, which arrangements prevent the usual " wear and tear of the cards, and also, where the hooks are made " strong for heavy work, I substitute for the usual tail cord a " piece of metal having at the top a boss, which supports the " hook, so that when resting on the bottom board the hook can " swivel with ease in consequence of the weight being independent " of it."

[Printed, 10d. Drawing.]

A.D. 1861, February 1.—Nº 271.

DE ARRIETA, José Joaquin.—"This invention relates to the " employment for various useful purposes of a certain natural " matter called in Cuba chapapote, whether in its concrete (or " solid) or its viscous, pasty, or more or less fluid condition, and " whether alone or combined with other substances. It may be " applied to wood, metal, brickwork, stone, leather, paper, fibrous " materials, and to various other substances, and to fabrics, " articles, and structures manufactured or constructed therefrom, " and to parts thereof to protect and preserve them from wear, " damp, oxidation, corrosion, the action of liquids or gaseous " fluids, acids, and insects, and other agents, or causes of deterioration, injury, and decay; it may also be applied to ornament " them, to strengthen them, and to render them impervious to " water, gases, and other fluids."

" For ropes, cordages, and fibrous and textile fabrics, these " may be coated with or steeped in chapapote, either when they " are manufactured, or their fibres or strands may be saturated " therewith before weaving, twisting, or working them up into " the rope or fabric."

[Printed, 6*d*. No Drawings.]

A.D. 1861, February 1.—Nº 274. (* *)

POLLOK, Morris, the younger.—(*Provisional protection only.*) —" Improvements in machinery or apparatus for winding yarn " or thread."

" This invention relates to the arrangement and construction " of a portion of the details of the machinery or apparatus used " for winding yarn or thread on to pirns."

" The object of these improvements is to obtain uniformity " in the winding by varying the tensional drag upon the yarn " or thread during the winding operation. Under one modification this is accomplished by means of a moveable bar or rod " extending along the front of the machine." This bar is carried upon a lower stationary one, " and it moves in a segmental path " over and partialy round the fixed bar;" motion being communicated thereto by any convenient means. "The moveable " bar is arranged that as the yarn is wound on to the thinner " portion of the pirn it moves outwards or away from the traverse " bar, *and vice versa.*" "The arrangement of bars here referred

" to may also be fitted in end discs if preferred, to which a partially rotatory movement is communicated in any convenient " manner. The requisite varying tension may also be obtained " by means of a rod moveable about its axis; to this rod are fitted " short elbow pieces of wire or other suitable material, the free " extremities of which have an eye formed in them. One of " these elbow pieces is arranged opposite each pirn, and the yarn " is carried up through the eyes and over the traverse bar. Upon " turning the longitudinal rod about its axis, the tension on the " yarn is increased or diminished at pleasure, and the winding is " carried on with uniform accuracy."

[Printed, 4*d*. No Drawings.]

A.D. 1861, February 2.—Nº 278.

HUGHES, Edward Thomas.—(*A communication from Eugène Mouline.*)—" Improvements in the manufacture of woven fabrics, " and in the machinery employed therein." " To maintain an " equal tension on all the warp threads during the operation of weaving, a large oblong frame is placed behind the loom to support a " number of bobbins, each warp thread being wound on a separate bobbin; with the necessary drag or tension caused by the " friction of its edges on a roller below it, and by a slight spring " being fixed at the exterior of the bobbin, if a warp thread breaks " the operative will be advised of it by the noise caused by the " friction of the said spring against a longitudinal cross piece " constituting part of the framework. The threads of each bobbin " pass over a glass rod placed at the proper height for the threads " to touch it, from whence they pass through a stationary comb, " and then through the reed to the ordinary beam. An iron shuttle " is used worked by an electric magnet, the iron shuttle being " mounted on small wheels."

"The slay or lathe is similar to the ordinary one in shape and " construction, but is made much heavier by attaching iron bars " to it; the weight is varied according to the quality of cloth to " be woven.

" In weaving ribbons there must be as many electric magnets " used as there are ribbons to be woven as the same time, the " said magnets to receive their alternate motion from a pinion, " and between each ribbon there is a small box wheel to hold the " shuttle whilst the slay beats up."

[*Printed, 1s. 4d. Drawings.*]

A.D. 1861, February 4.—N° 290.

DE BALYON, AUGUSTE EDOUARD CHASTEAU.—This invention relates to an improved description of fabric. "The fabric is "composed of silk warp and two wefts, one of cotton and the "other of wool, the cotton weft being, by preference, on the face "of the fabric, and the woollen weft on the back of the fabric, the "two wefts being tied together so as to form a single fabric "by means of the silk warp. By this means a warm and absorbent fabric is produced suitable for being used in place of "flannel."

[Printed, 4*d*. No Drawings.]

A.D. 1861, February 5.—N° 301.

LEEMING, JOHN.—"This invention has for its object improve-"ments in looms, and consists, first, in means of giving motion "to the lay or sword of a loom by applying a cam or tappet "motion so constructed and arranged as to produce only one "dwell or pause in a complete revolution of the driving shaft."

"The invention consists, secondly, in a break apparatus for "stopping the loom quickly and without strain on the driving "shaft. For this purpose the break is formed of two levers, each "of which is mounted on a stud or axis fixed to the framing of "the loom. Each lever is formed with a curved surface corre-"sponding with the curvature of the periphery of the fly wheel, "and such curved surfaces of the levers are lined with leather or "other suitable materials. The two levers are applied at oppo-"site points of the circumference of the fly wheel, so that the fly "wheel will simultaneously have friction applied to its periphery "at two opposite points, which will prevent any strain on the "driving shaft."

"The invention consists, thirdly, in means of supplying yarn "to shuttles in cases or cop holders where a continuous action is "not obtained." This is accomplished "by affixing a horizontal "disc plate on a stud fixed to the frame of the loom or other "support. On the face of this disc" are arranged "parallel "uprights at suitable distances to hold the cases containing the "weft," the disc is actuated or caused to rotate upon its axis as desired, so as to bring a required case into position to be inserted into the shuttle by mechanism applied beneath the disc plate.

[Printed, 10*d*. *Drawing.*]

A.D. 1861, February 6.—N° 303.

HUGHES, Edward Thomas.—(*A communication from Philibert Alexis Trambouze.*)—This invention relates to shuttles. "In the " body or frame of the shuttle is placed two small rollers having " part of their peripheries below the bottom surface, which " revolve on their axes as the shuttle moves to and fro. In the " interior of one of the rollers teeth are formed, which gear into " a pinion at one end of an intermediate shaft or spindle; at " the other end of which is another pinion gearing into a pinion " on the spindle or skewer which carries the bobbin, which " arrangement is for the purpose of re-winding on the bobbin " any excess of thread which may have come off, and thereby " avoid inconvenience and loss of material.

" When there is no thread off the bobbin, the latter turns with " a slight friction upon its spindle or skewer, so as to let the " thread off with a proper tension."

[Printed, 6*d*. Drawing.]

A.D. 1861, February 6.—N° 307. (* *)

BOURCIER, Claude Marie Jules, and ALLAN, Thomas.—(*Provisional protection only.*)—"Treating certain animal sinews " in order to convert them into fibres or threads," and "the em- " ployment of the threads or fibres alone, or mixed with other " fibres."

" The animal sinews which we treat are the genital organs of " bulls (nerfs de bœufs), and our invention consists in flattening " them between rolls, or by beating, and in separating the fibres " by means of combs or cards, in preventing decomposition " therein either before or after being carded or combed, whereby " also their strength is encreased by means of antiseptic agents, " for which purpose we employ salts of alumina or of chromium, " chloride of aluminium, or of mercury; or we submit them to " the process of tanning, and we use fibres or threads thus pre- " pared from the sinews aforesaid, alone or mixed with other " fibres for spinning, for ropes and cordage, for straps and bands, " and for the manufacture of cloths and textile fabrics, and " generally for all purposes for which fibrous materials are now " used."

[Printed, 4d. No Drawings.]

A.D. 1861, February 7.—N° 311.

BEESLEY, John.—This invention relates to looms for weaving ribbons. The patentee says: — "My invention consists in "arranging the racks and pinions horizontally, that is to say, at "right angles with the face of the batten, and when several sets "of shuttles are used I place one rack and pinion above the "other, and either at the top or bottom of the batten, or both, "whereby a greater number of sets of shuttles can be conveniently and advantageously used."

[Printed, 6*d*. Drawing.]

A.D. 1861, February 8.—N° 315.

BLEZARD, Thomas, and BLEZARD, James.—" This invention relates to the apparatus generally called temples, used for "keeping the cloth or fabric at the proper tension during the "process of weaving, and consists in the addition of a tension "bar made of wrought iron or other suitable metal or material, "and having its sides formed to the requisite angle. The temple "head or roller carriage is prepared for one or more rollers of "the ordinary construction, and has a tongue piece with a hole "in it to receive a T-headed lock bolt, which rests upon a projection on the under side to prevent its getting out of its proper "position, and which also answers for the lower part of the "sliding block or locking piece to abut against, whilst securing "the temple head to the tension bar. The sliding block or "locking piece is formed with a groove in the middle of it to "fit the tongue piece of the plate of the temple head or carriage, "the upper part being formed of the same angle as the tension "bar. The roller cap is secured to the temple head by any suitable means."

[Printed, 1*s*. Drawings.]

A.D. 1861, February 8.—N° 318.

PEAKE, Benjamin.—(*Provisional protection only.*)—This "invention consists in making a back of cotton to brocaded silk "fabrics. The said back of cotton consists of an additional "warp of cotton woven in the same loom and at the same time "as the brocaded silk. The object of the said back of cotton is "to give additional substance or firmness to the fabric."

[Printed, 4d. No Drawings.]

A.D. 1861, February 9.—N° 332.

LOCKWOOD, John.—The patentee says:—"My invention "relates to metallic healds for weaving fibrous materials, and "consists in forming such healds out of one piece of wire "(though two pieces may be employed substantially in the same "manner) by doubling it, so as to form a single staple, and then "twisting the ends of the staple together to form a long loop, "and then twisting the loop together, but leaving a part un"twisted at each end to form a loop for the heald rods, and "another part untwisted in the middle to form a loop for the "warp thread." A machine is described for twisting and forming the improved heald.

[Printed, 8*d*. Drawing.]

A.D. 1861, February 15.—N° 386.

LECAT, Adolphe.—(*A communication from Francois Postel.*)—This invention relates to power looms. The patentee says, "I "propose employing a jacquard apparatus in combination with a "power loom for the manufacture of harnesses of all kinds, and "a lifting and lowering mechanical harness to be actuated by "any known motive power; also a cylinder which is made to "advance or return similar to the cylinder of a barrel organ, said "cylinder being supplied with a series of cogs or teeth correspond"ing with divisions in the cylinder, which cause the needles to go, "and producing the required patterns. I also propose using "hooks in pairs co-operating with spiral or other springs, which "bring them constantly back to their original position. The "deviation of the needles is caused either through the interme"diacy of eccentrics or cams, or by the motion of the cylinder "as before described, my principal object being to produce various "patterns in tissues without the use of treadles as ordinarily used "by combining a jacquard apparatus, and using any motive "power most convenient for the purpose."

[Printed, 10*d*. Drawing.]

A.D. 1861, February 15.—N° 387.

SENIOR, Allen.—The patentee says,—"My invention relates "*to those looms* which are provided with rising or drop boxes "*for weaving with* two or more shuttles, and consists, firstly, in

" an arrangement whereby the said shuttles are caused to rise and " fall. For this purpose I use rods which are caused to slide by " connection with the jacquard or equivalent apparatus, such " rods being provided with inclined parts which cause a plate to " slide within guides through different distances, by which means " a cam with two or more elevations is traversed so as to shift " the shuttle box according to the weft desired to be thrown. " Secondly, I employ the above described arrangement for shifting the picking motion for looms as aforesaid. Thirdly, I " arrange the levers for governing the picking motion so that " they are connected at the centres, and are caused to act by one " rod from the jacquard; and in order to permit this the centre " of motion of one of them is placed in a slot, or is otherwise " capable of shifting its position."

[Printed, 10*d*. Drawing.]

A.D. 1861, February 16.—N° 393.

RÉAL, LOUIS HENRI.—(*Provisional protection only.*)—"Improvements in weaving." The inventor says,—"Hitherto in " weaving fine fabrics, especially when composed of many colors, " the jacquard machine has been almost useless, owing to the immense expense and labor required for producing the patterns.

" Now the object of my invention is to overcome this defect by " constructing an apparatus to take the place of the jacquard, " which is capable of performing that work and throwing in those " colors which the jacquard cannot do. The apparatus consists " of a comb placed in a vertical, horizontal, or inclined position, " and free to move without bearing on the warp. The warp " threads on which the weaving is performed pass through the " spaces in the comb perpendicular with the teeth of the comb, " and consequently parallel with the band of metal or other " suitable material connecting the teeth; close to these teeth, and " successively with each row of the pattern, there is a band of " sheet metal or other material covered with paper or having a " surface capable of receiving writing or design on which lines " are drawn parallel with the teeth of the comb, their distance " apart being as near as possible equal to that between the teeth " of the comb, in such manner that the lines drawn on the band " (taking the place of the jacquard card) coincide with the teeth " of the comb, and thus the spaces on the band, with those of " the comb, each with its co-ordinate having the same fixed rela-

" tion to each other as the jacquard card has to the cylinder, " where each point of the card corresponds with a needle of the " jacquard, which in its turn corresponds with a hook and with " its drawing cord, in relation with the loop and the warp thread " which it is intended to raise."

[Printed, 4*d*. No Drawings.]

A.D. 1861, February 19.—N° 414.

TURNER, ARCHIBALD.—These improvements relate to "cutting, " warping, and beaming elastic or india-rubber strands or threads " preparatory to weaving them into elastic fabrics." The patentee cuts "all the india-rubber threads or strands intended to form " one warp or two warps from one and the same sheet of india-" rubber, which of course is made of one uniform length." In cutting the sheet rubber into strands, one extremity of the sheet is secured "in a groove or recess made for the purpose on a cylin-" der, and so arranged that the sheet may be divided into threads " from end to end throughout, except a narrow piece at the end, " which will be that part that is held in the groove in the recess " in the cylinder." "The elastic warp thus produced is then " wound up in a skein and tied, so that the ends should not get " entangled. It is then transferred to and loosely placed on a " cylinder or roller, from which it is drawn off by the head or " uncut end on to a beam, cylinder, or warping mill, and from " this it is again drawn off by the other end or tail, and is wound " tightly on to the warp roller or beam, so that the warp may be " placed in the loom with the india-rubber or elastic strands all " stretched to the same tension."

The patentee prefers performing "the warping operation in a " long room, in which the whole length of the warp may be " operated upon;" but when this is not convenient he arranges " an apparatus whereby the beaming and stretching operation " may be performed in a more limited space. This apparatus " consists simply of a series of rollers or cylinders mounted in " frames at the respective ends of the room, and over which " rollers or cylinders the elastic threads are extended from end to " end in a serpentine direction."

[Printed, 8*d*. Drawing.]

A.D. 1861, February 23.—N° 457.

***STEVENS*, CHARLES.**—(*A communication from Stefano Pettaluga.*)—"*This* invention consists of an improved method of

" unhooking in jacquard machines, replacing the present method, " which is effected by means of the needles."

" In the jacquard machine there is a grate of stout iron wire, " which crosses horizontally the front of the line of the hooks, and " by means of its retrograde movement at the moment of the " unhooking of the hooks forces the latter to draw back after " their stationing on the collar board. Instead of this operation, " that is to say, the forcing back of the grate when the hooks are " at rest, the grate is made to perform its retrograde movement " at the moment of the unhooking, and thus it is the bars of the " grate which causes the hooks to leave the lifting blades of the " grif or lifting bar, and the needles are consequently no longer " subjected to this shock, and are pushed back very gently. A " simple escaping movement will effect this operation. A double " lever is connected with the grif, and a moveable catch is placed " on the slider, which catch in descending from the grate gives " movement to the double lever, and in ascending escapes without giving movement."

[Printed, 8*d*. Drawing.]

A.D. 1861, February 23.—N° 462.

MEYERS, Michael.—(*Provisional protection only.*)—" This " invention consists of combining or amalgamating with silk, " cotton, or wool, flax or hemp, either separately or collectively, " in the manufacture of woven fabrics, such mixture of materials " producing a fabric very suitable for the covers of umbrellas, " parasols, wearing apparel, and other similar purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1861, February 23.—N° 463.

WARD, George, and **GASKELL**, James.—" Improvements in " machinery or apparatus for making healds." " This invention " relates to an improved mode of threading or leasing the eyes of " the healds. Instead of knitting on a moveable bar or leasing " rod," the patentees " knit on a short tube, and transfer the eye " of the heald as it is formed on to a stationary bar or leasing rod. " The leasing band attached to the bar is held in a slanting " direction so as to enable the topping bobbin to pass underneath and form the coupling. A band passes through the tube " tied to a backing band or rig cord in order to cause the traverse

" of the healds on the bar, there being a space between the tube " and bar which enables the coupling to fall down and permit the " eye alone to pass on to the bar."

[Printed, 6*d*. Drawing.]

A.D. 1861, February 25.—N° 478.

LEEMING, JAMES.—"This invention has for its object the " saving of the cards required in the ordinary jacquard engine or " index machine," by making one card answer for two or more picks. "There are two or more rows of holes in the cylinder, " parallel and at right angles with each other, and corresponding " holes in the cards, where required," and the patentee traverses " vertically the breast-plate or face-plate, which holds the ends of " the wires first opposite one row of holes and then opposite " another row, ready to be operated upon by the said cards, during " which time the cylinder remains stationary by reason of the " catch, which operates or turns the same being raised out of " contact therewith."

[Printed, 10*d*. Drawing.]

A.D. 1861, February 27.—N° 501.

HUDSON, WILLIAM, and CATLOW, CHRISTOPHER.—(*Provisional protection only*.)—These improvements relate to power looms. The first improvement consists "in the application of a " spring to the sley in such manner that the force of the said " spring shall act in aid of the motive power in carrying the " crank over its dead point."

The second improvement consists "in varying the position or " height of the warp in the loom at different parts of the beat " up. The warp is lowered at the time of the crossing of the " sheds, so that both sheds may rise or fall through an equal " space before crossing, and be subjected to the same amount of " tension at the time of crossing. After the crossing the warp is " re-elevated, and both sheds slackened a little at the moment " of the beat up, which improves the cover of the cloth."

[Printed, 4*d*. No Drawings.]

A.D. 1861, March 1.—N° 527.

HOWORTH, ROGER.—(*Provisional protection only*.)—"This " *invention relates to* the manufacture of a certain description of

" healds, employed in weaving by machinery, and wherein the " knots usually formed at one end of the loop or eye through " which the warp passes are dispensed with. The improvement " consists in giving a slight reciprocating motion to the middle " arm in a heald machine, upon which the loops or eyes are " formed, the healds being knitted by the upper and lower " knitting arms as usual, the loop or eye being formed without " knitting, and is thus effected:—When the middle arm is at its " lowest point, and stationary, one of the lower heald threads is " passed over it, and the upper one passed between the loop so " formed, the arm then rises about the distance of the eye " required, and the next top and bottom threads are looped into " each other, making their loop at a higher point. It will be " seen that if these two threads are placed behind each other, " and the warp passed through, a loop or eye will be formed, " and in continuing the manufacture healds may be made by " the double quantity of threads, or the same effect may be " obtained by using a double set of healds, one behind the other, " and one being set slightly higher than the other."

[Printed, 4*d*. No Drawings.]

A.D. 1861, March 2.—N° 541.

BOTTURI, SEBASTIANO.—" Improvements in apparatus for " weaving." The patentee says, " I employ a hollow cloth beam, " front beam, or receiving roller, within which is a spindle driven " by gearing from the tell-tale, reckoner, or indicator, and causing " the beam to revolve with it when the latter is forced against it " by a clutch regulated by a screw or spring, whereby the speed " of the beam is regulated." " The spindle has at one end " gearing for driving the temple." " At the back of the loom is " a guide roller, level with the cloth beam or breast beam, for " guiding the yarn or fibrous material from a yarn, thread, or " warp beam placed below it, the speed at which it is delivered off " that beam being controlled by a clutch, collar, check, or break " adjusted by a spring or screw.

" My temple consists of a shaft carrying a pair of wheels with " teeth or points on their peripheries. These wheels are loose on " the shaft, but are caused to turn with it by forcing a wedge " or block between them and abutments adjusted by a screw or " *otherwise.*"

"The lay is worked by connecting rods from a crank driving " shaft, or by excentrics, cams, or otherwise, and carries an arm " that I call a driver, which may be adjusted in length by screwing it to a threaded socket or shank, and which driver moves " the tell-tale, indicator, or reckoner, which consists of a toothed " or ratchet wheel, with double click or clawker, driving the cloth " beam by a pinion."

"The lay also works springs, which actuate the shuttle."

"For weaving in various colors, wheels with compartments " are employed, driven by connections from the driving shaft, or " otherwise."

"To adjust the lay at the required height, it may have a " threaded part at top, on which is held by nuts a collar or ring " with two arms or journals which rest and work in bearings, so " as to allow the lay its to-and-fro swing. The reed dents are " longer than usual to serve for weavings at different levels." " The lay works the heddles by the following contrivance :—To " the lay is attached a 'shifting driver,' jointed at each end ; such " end where not to act is forced out of the way by a fixed arm, but " when disengaged therefrom at the forward stroke of the lay, is " returned to position by a spring, and strikes against and moves " one of four curved arms attached to a shaft, of which there is " one with its appurtenances at each side of the loom, thereby " causing the shaft to revolve. The shifting driver performs four " strokes, moving each curved arm in turn, and rotating the shaft " on one side of the loom, and is then shifted across the lay by " its shifting spring to drive the shaft on the other side of the " loom in like manner. Each shaft carries a four-toothed ratchet " wheel and click to stop it at each fourth of a revolution, and at " top it carries a revolving contrivance, which I call a 'Botturi " 'wheel,' and which consists of four crosses, one above another, " attached together by connecting pieces at the ends of their " limbs, and steadied by a projection on the top cross, turning in " a collar or cap, thus all four revolve together. One of the connecting pieces on each cross is intended to receive a wire or " cord for working the heddle."

"For weaving in shapes or form, I move the portion of the " warp not required for the work out of the way of the shuttle by " means of the heddle cords or wires in various manners."

"For weaving certain fabrics the heddle cords or wires may be " *connected to levers* acted on by cylinders or barrels having teeth

“ on points on their peripheries, and rotated by endless screws or “ otherwise.”

“A number of looms working a variety of different fabrics or “ patterns may all be worked from one loom, which I call the “ principal or driving loom, and which is actuated by steam, “ hand, or other motive agent.”

“The foregoing explanation refers to a loom in which the warp “ is horizontal, as in ordinary looms; but the same principal of “ construction may be applied to looms in which the warp is “ placed vertical.”

“ A double or combined horizontal and vertical loom, or hori- “ zontal and oblique loom, may be constructed, one warp being “ carried up at right angles to the horizontal warp, and brought “ over a beam down at an angle on to the horizontal warp where “ it is to be worked.”

[Printed, 2*s.* 6*d.* Drawings.]

A.D. 1861, March 4.—N° 548.

MURPHY, Robert. — (*Provisional protection only.*) — “ This “ invention relates to a peculiar arrangement of apparatus for “ removing the pressure of the swell upon the shuttles of looms “ at the time of their entering and leaving the box, and consists “ in the employment of mechanism, which operates directly upon “ the swell itself without the intervention of cams, tappets, or “ additional springs.” The inventor connects “ the back of the “ swell with the upper end of a lever, which works on an adjust- “ able centre carried by the slay. The lower portion of this lever “ is bent nearly at right angles, and continued some distance in “ a nearly horizontal direction towards the back part of the loom. “ Upon this horizontal part of the lever is fitted an adjustable “ incline, which is acted upon so as to move the lever and with- “ draw the swell at each stroke of the slay by an antifriction “ roller, carried by a bent arm working loose on a stud in the “ side of the loom. A guard plate is provided, under which the “ point of the bent lever enters just as the antifriction roller leaves “ the adjustable incline, so as to give a gentle pressure to “ steady the shuttle when entering the box; by this time the bent “ lever has left the guard, and consequently all the pressure is on “ the shuttle when in the shuttle box, and is entirely removed “ when leaving it.”

[Printed, 4d. No Drawings.]

A.D. 1861, March 5.—N° 561.

ALCAN, Emile.—(*A communication from Michel Alcan.*)—" A " method of simultaneously marking and piercing or perforating " plates of metal, cardboard, paper, and other material employed " in looms for weaving figured fabrics." The invention consists in " marking and piercing plates of metal, cardboard, paper, and " other materials employed in looms for weaving figured fabrics " from a pattern prepared with insulating varnish upon metallic " paper, by means of electric currents."

[Printed, 10*d*. Drawing.]

A.D. 1861, March 7.—N° 584.

CLARK, William.—(*A communication from Eugène Lebée.*)—(*Provisional protection only.*)—" Improvements in warping, " dressing, and finishing threads, and in apparatus for the same." " This invention relates to causing threads of flax, hemp, wool, " silk, or other material, but principally of cotton, previously im- " pregnated with size or other dressing, to pass between and in " contact with tubes or cylinders of india-rubber or other suitable " materials, which by compressing the thread, expresses the super- " fluous dressing it contains, and allows only the necessary " amount to remain." " According to this invention, all difficulty " in the working and attachment of the threads is obviated, " which operation may be effected instantaneously without inter- " rupting the motion of the apparatus."

[Printed, 6*d*. Drawing.]

A.D. 1861, March 9.—N° 594. (* *)

MEYERS, Michael. — (*Provisional protection only.*) — " Im- " provenents in woven fabrics."

" This invention consists of combining or amalgamating with " silk, cotton, or wool, jute or Indian grass, either separately or " collectively, in the manufacture of woven fabrics, such mixture " of materials producing a fabric very suitable for the covers of " umbrellas, parasols, wearing apparel, and other similar pur- " poses."

[Printed, 4*d*. No Drawing.]

A.D. 1861, March 11.—N° 604.

***HIRST, John*, junior, and HOLLINGWORTH, James.**—" Im- " *provements in means or* apparatus employed in weaving." The patentees say,—" The improvements relate to means of using the " same jacquard or such like apparatus to act at the same time " upon the harness or healds, and upon series of shuttle boxes " for changes thereto. For this purpose, the needles operated by " the pattern surface act as heretofore upon the hooks to bring " them into position to be raised or missed by the griffs or knife " edges for the selection of the harness or healds, but we connect " those needles to act directly or without the intervention of the " hooks upon the means for bringing the tappets, or levers, or " other operating means into position for operating the change " of boxes. By this arrangement, time is saved in working the " weaving apparatus. This part of the improvements is also " applicable to operate upon picking apparatus, by connecting " such with the needles, in place of the hooks. We also form " the hooked wires or rods of the jacquard apparatus (the hooks " of which are acted upon by the knife edges or griffs) double, " with a hook at each end, capable at the same time of taking on " to separate griffs or knife edges, by which means the inconvenience arising from the opening of the bottom of the hook, " when the bands are attached, is avoided, as well as greater certainty of action obtained, as in the event of one hook missing " its griff or knife edge, the other will be taken by another knife " edge or griff; and we also sometimes pass the separate stems " of the hooks through separate needles, by which, in the event " of one needle missing to be operated upon, another is in position " for the purpose. We also connect the motion of the jacquard, " or lag barrel, or other pattern surface for operating the healds " or harness, with the pattern surface for operating series of boxes, " in order that when a back motion is given to one, it may be " communicated to the other, and to an equivalent extent.

" Also, the improvements relate, when series of lifting shuttle " boxes are used, to a combination of means for bringing the " required box of the series in a line with the lay. For this purpose, at each end of the lever supporting the boxes, we apply " studs or projections in number adapted to the number of boxes; " each of these projections is capable of being acted upon by a " lifter, and these lifters have a rising and a falling motion by " cams or tappets, and are brought into position by jacquard or " pattern surface, so that whilst one lifter is acting to lift or lower, " the other is out of the way, and there is friction-holding means " applied during the intervals."

[Printed, 10d. Drawing.]

A.D. 1861, March 15.—N° 645.

STEVENS, Charles.—(*A communication from Jean Jacques Moeckel.*)—" An improved regulator for looms." The improvements described relate to machinery for spinning and not to weaving.

[Printed, 10*d*. Drawing.]

A.D. 1861, March 16.—N° 664.

HOLDEN, John.—These improvements relate to looms. The patentee says:—" Firstly, I attach to the lathe of the loom a lever " worked by an inclined plane to raise the weft from the shuttle " board, so as to enable the weft fork to catch the thread of weft, " dispensing with the necessity of a nick or slot in the shuttle " board, by which plan wheeled shuttles can traverse the shuttle " board without being impeded in their course.

" Secondly, I use an elastic or other break worked from the " stop rod, and which acts upon the centre of the bottom of the " lathe.

" Thirdly, for self-acting temples, I cover the top or pressure " roller with caoutchouc or other elastic substance which works " on the top part of the under roller, and is pressed down upon " it by means of a set screw, with an adjusting screw beneath the " lid to regulate the pressure; or, if desirable, I cover both " rollers with an elastic substance.

" Fourthly, I attach a serrated slide to the front of the temple, " worked by a compound lever and an inclined plane attached to " the lathe.

" Fifthly, I raise teeth upon the bottom roller by means of a die " and the use of pressure from a pair of clams."

[Printed, 6*d*. Drawing.]

A.D. 1861, March 20.—N° 700.

GEDGE, William Edward. — (*A communication from Jules Cordier.*) — (*Provisional protection only.*) — " This invention consists in substituting, in lieu of the woollen cloth with which a billiard table is usually covered, a woven fabric, both warp and " woof of which will be of cotton."

[Printed, 4*d*. No Drawings.]

A.D. 1861, March 22.—N° 720.

HINDLE, *Thomas*.—" Improvements in looms for weaving." " *This invention relates to* what is technically called the ' clutch

" 'tappet,' and consists in placing on the tappet shaft a cam which " works a ratchet in a parallel direction by means of guides. The " ratchet acts upon a ratchet wheel connected to a plate, having " fixed to it a number of segments of any desired width which " operate upon the clutch by means of a lever, and thereby " enable any given number of picks to be thrown in each " shed."

[Printed, 8*d*. Drawing.]

A.D. 1861, March 22.—N° 729.

HALEY, Abraham. — "Improvement in power looms for " weaving check patterns, and in connecting rods for power " looms." " These improvements consist, firstly, in making the " star wheel used in check weaving looms with tappets on each " side, which operate upon two levers in connection therewith, " one lever being fixed to an ordinary rocking shaft, and the " other a bell-crank lever, working loosely thereon. By this " arrangement the shuttle boxes at each side of the looms can be " raised or lowered independently of each other.

" Secondly, the apparatus for working the picks is also fixed " upon the star wheel, and is made as follows:—A circular " groove is made at one side of the star wheel, and in this groove " is fixed a series of tappets in accordance with the star wheel. " The bowl of a lever works in this groove, and being operated " upon by the tappets gives motion to the picks.

" Thirdly, in making V-grooves in the back of the frame " holding the shuttle boxes, in which work suitable guides, " V-shaped, which are fastened on the shuttle boxes.

" Fourthly, in fixing a shaft across the loom, upon which are " fixed three or four chain barrels or drums giving motion to four " tappet chains; the said cross shaft is driven by a star wheel " which receives its motion from the crank or driving shaft of the " loom; one or two of the said tappet chains give motion to the " rising boxes, one at each end of the loom, and the other two " chains work each one pick; by this means the picks and " rising boxes at each end of the loom can work independently " of each other.

" Fifthly, in making the connecting rod in two parts, one " sliding within the other, and interposing a piece of india-rubber " or other *suitable elastic* substance between the ends in contact,

" so as to subdue the shock of the sudden change in the direc-
" tion of motion. The two parts of the connecting rod are held
" together by a bolt or rivet, which passes through an elon-
" gated slot made in one part so as to permit the elasticity
" of the india-rubber to be felt when the loom beats up the
" weft."

[Printed, 2*s.* 2*d.* Drawings.]

A.D. 1861, March 23.—Nº 739.

WICKENS, Henry.—This invention relates to shuttles, and consists "in having a piece of brass or other suitable metal or
" material of a spherical or spheroidal form with a polished or
" smooth surface, and which piece of metal or material is for con-
" venience herein-after denominated the ball, put on the spindle
" of the ordinary shuttle, and fixed thereon at a suitable distance
" from the point of the spindle, so that the thread as delivered
" from the cop on the spindle shall pass over and in contact
" with some part of the surface of the ball to equalize the tension
" of the thread, and facilitate its delivery through the eye-hole
" of the shuttle."

[Printed, 6*d.* Drawing.]

A.D. 1861, March 27.—Nº 765.

BRIGGS, Edward, and FEARNLEY, Samuel.—"Improve-
" ments in the manufacture of piled fabrics, and in the machinery
" or apparatus employed in manufacturing piled and other
" fabrics."

The first improvement is "applicable when weaving double-
" piled fabrics with only one pile warp, which warp is not divided
" into two sets or divisions. In weaving the said piled fabrics
" three picks or shoots of weft are thrown into the sheds of the
" ground warps of one fabric, and then three picks into the other
" ground warp, and so on alternately, at the same time crossing
" the pile warp," "in such a manner in connection with the body
" or ground warps of the fabrics, that when the pile is cut across
" it will be tied in the ground warps as in weaving silk velvet by
" hand."

The second improvement consists "in so arranging the parts
" of the loom that the pile warp will not have to pass through
" the heddles which work the ground warps."

The "third improvement is applicable in weaving double-piled

" fabrics when wires are used, and it consists in inserting the " wires at or near the fell of the fabric, instead of in the open " shed or near the reed."

The "fourth improvement is applicable to looms in which " wires with knives or cutting edges are employed in weaving " the said double fabrics," and it consists in the use of a guide rail "for guiding the cutter and supporting the pile while being " cut."

The fifth improvement "consists in the application of an " endless steel band for cutting the pile warps uniting a double " fabric."

The sixth improvement consists in "an improved mode of " tightening and holding the warps when the lay beats up the " weft. A band or chain is passed two or three times round a " pulley fixed to the end of the vibrator; one end of this band or " chain is connected to a spring or a weight, and the other end to " a lever. When the lay is beating up the lever is acted upon by " a cam or otherwise to tighten the band or chain, thereby partly " turning the vibrator and tightening the warp."

The seventh improvement consists in the application of a " coiled ratchet wheel" to the taking-up and letting off motions of looms.

The last improvement "consists in the application to looms of " a self-acting apparatus, by means whereof the speed of the " letting-off motion or the speed of the taking-up motion is " maintained at an uniform velocity. One mode of effecting this " is by making a screw on the end of the roller over which the " warp or woven fabric is taken. This screw passes through a " toothed wheel which gears into a long pinion in which a worm " works, and this worm is fixed on the same shaft as a ratchet " wheel, which is turned round by a pall acted upon by the lay " sword or other convenient part of the loom. As long as the " warp or fabric causes the roller to revolve at the same speed as " that imparted to the long pinion by the worm, the speeds of " the wheel and the roller coincide and no lateral motion is given " to the wheel, but when the warp or fabric moves too fast a " lateral motion is given to the wheel, which motion by means " of a lever or other connection reduces the amount of warp " given off or of fabric taken up; the contrary action takes place " when the warp or fabric is not moving fast enough."

[Printed, 1s. 4d. Drawings.]

A.D. 1861, April 6.—N° 854.

JOHNSON, John Henry.—(*A communication from Samuel Thomes Thomas.*)—This "invention relates to the general construc-
" tion, arrangement, and combination of looms for weaving figured
" fabrics, and consists :—Firstly, of a peculiar combination of
" mechanism for working the harness.

"Secondly, of a peculiar combination of mechanism for in-
" stantly stopping the loom when requisite.

"Thirdly, of a peculiar combination of mechanism with a jac-
" quard for working the drop or shuttle boxes of looms.

"And, fourthly, of a peculiar arrangement of jacquard and of
" the cards employed in machines of that description.

"The harness is worked by means of geared sectors and racks,
" the sectors being formed with curved slots, which slots, through
" the motions of the sectors, actuate the harness levers or jacks.
" These levers or jacks are made with three arms, the centre one
" being acted upon by the slot in its corresponding section,
" whilst the top and bottom arms are respectively connected by
" rods with the top and bottom of each leaf. Each leaf has a sector
" and jack lever of its own, and these are brought into action
" according as they are required in the pattern by means of a
" simple form of jacquard. The cylinder or prism of this jac-
" quard works vertically in place of horizontally, and the pattern
" card in action lies horizontally upon the top side of the prism
" in place of hanging vertically upon one of the sides thereof.
" Above the card of the jacquard is arranged a set of weighted or
" gravitating bell-crank levers, the longer and horizontal arm of
" each being provided with a pin corresponding to, but smaller
" than the holes in the prism, so that it may pass freely therein,
" whilst the shorter and nearly perpendicular arm bears against
" the front of the racks before referred to, and when by reason
" of a hole in the card the pin passes through, this short arm
" tends to force a hook or notch on the corresponding rack over
" a lifting bar, in which case when the lifter rises it lifts with it
" those racks which have been pushed forward, and in so doing
" partly turns the sectors and actuates the jack levers in connection
" therewith. On the opposite side of the racks are springs for
" forcing the hooks off the lifter bar, and bringing similar notches
" below a descending or depressing bar, which in its descent
" forces down the racks again to their original positions. These

" motions of the lifter and depresser bars are derived from a cy-
" lindrical grooved cam and pair of bell-crank levers, and the
" rising and falling motion of the jacquard prism is obtained
" from an inclined cam surface on the cylindrical cam above
" referred to acting upon another bell-crank. This compound
" cam is carried on the crank shaft of the loom. A suitable
" spring friction break is employed for steadying the motions of
" the sectors."

"The peculiar mechanism for effecting the instantaneous stop-
" page of the loom when required consists of a finger projecting
" from the protector rod and striking a bell-crank lever, which
" releases the starting handle through the intervention of a slid-
" ing rod and incline thereon. This release of the starting handle
" brings into action a break, which is forced laterally against the
" side of a friction disc or flange on the crank shaft of the loom,
" and simultaneously withdraws the driving pulley from contact
" with a friction cone, so that the pulley becomes a loose driving
" pulley at the same time that the break is applied."

"The apparatus for working the drop boxes or shuttle boxes of
" looms consists of a jacquard, the pattern prism of which works
" vertically by means of an eccentric, and the wires of which are
" turned or bent down at their upper ends, so as to be acted upon
" or not according to the holes in the pattern card, which lies
" horizontally upon the top side or surface of the prism. The
" lower ends of the wires govern or control the working of a set
" of palls, which operate upon ratchet wheels and star cams, such
" palls being actuated by cams and vibrating lever arms when
" released by the elevating of one or more of the wires. Weighted
" or gravitating levers serve to force back the palls on being
" released, whilst the forward throw or push is derived from the
" cam and vibrating lever above referred to. The star cams act
" respectively upon one end of a horizontal compound lever oper-
" ating the shuttle boxes. This compound lever consists of two
" levers placed one above the other, the bent end of the upper
" lever being jointed to the middle of the lower lever. The
" free end of the upper lever is acted upon by one of the star
" cams, whilst the corresponding end of the lower lever has an
" incline formed upon it, and is operated by a sliding wedge
" piece worked by the second star cam. The opposite or free end
" of the under lever is connected by a rod to the drop box on one
" side of the loom, a somewhat similar arrangement being em

" ployed for working the drop box on the opposite side of the " loom, the motion being derived from a third star cam and set " of levers."

"The 'cards' which it is proposed to adopt in these or other " jacquard machines are made of sheet tin or other stout material, " and the holes therein are closed or opened as required to suit " the pattern for the time being by small buttons or stops which " are rivetted to the 'card,' and made to turn over and so close " any one or more of the holes therein."

[Printed, 2*s*. Drawings.]

A.D. 1861, April 9.—N° 873.

TWEEDALE, Abraham, TWEEDALE, John, and TAYLOR, Samuel. — (*Provisional protection only.*) — These improvements relate to temples for looms. The inventors say :—" We propose " to employ two, three, or more conical or parallel rollers armed " with teeth, and extending inwardly from the edges of the cloth " which passes around them. These rollers, or one of them, we " form in two or more detached portions, which are capable of " revolving independently of each other, and to these and other " temple rollers we apply ratchet wheels and clicks, such clicks " being for the purpose of preventing the said rollers from turning in one direction, but slipping over the teeth so as to allow " them to turn in the other direction.

" Also we propose constructing temples by placing conical or " other rollers with spikes upon axes at right angles or thereabout to the cloth, and providing them with ratchets and " clicks, as above mentioned."

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 11.—N° 887.

CHALMERS, David. — (*Provisional protection only.*) — " This " invention relates to a particular mode of weaving textile " fabrics in such manner as to impart increased strength thereto, " and it is more particularly applicable to sail cloths, tarpauling, " sacking, pack sheet, and other generally similar fabrics.

" Under one modification the cloth has woven in it at regular " predetermined distances asunder transverse stripes or narrow " *widths*, which are made much stronger than the intervening " *portions of the fabric*." " Instead of transverse stripes of plain

" cloth of a heavier texture the cloth may be twilled at regular " intervals and the weft beaten up to produce the required thickness or degree of strength; or instead of transverse stripes of " stronger material the stripes may be formed longitudinally, or " a combination of stripes in both directions."

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 12.—N° 900.

SALISBURY, Silas Covell, and TURNER, Josiah.—(*Provisional protection only.*) — " An improvement applicable to " shuttles for the saving of cop waste." The inventors say:— " We propose to remove the tendency which the weft thread has " to coil around the skewer while being drawn out of the shuttle " when the diameter of the cop is reduced to about the extent of " that of cop waste. A simple and efficient method of effecting " this object is to slip on to the shuttle skewer a collar or ring " in advance of the nose of the cop, which collar or ring will act " as a guide to keep the thread off the skewer while passing to " the eye of the shuttle."

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 15.—N° 926.

LENNARD, Frederick. — " This invention has for its object " improvements in the manufacture of looped pile fabrics. For " these purposes the warp or the weft used in weaving fabrics is " made with loops, which in the manufactured fabrics become the " looped uncut pile on one or both sides."

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 16.—N° 936.

CHALMERS, David. — (*Provisional protection only.*) — This invention relates to apparatus " for actuating the shuttle boxes " of drop-box looms." " Under one modification of this invention the tappet shaft of the loom has fitted to it an excentric, " which is connected by means of a link to a vertical rocking " lever arranged at the back of the loom. This lever is centred " on a stud which passes through its lower extremity. The " upper part of this lever is forked, and on the ends are supporting pieces in which the journals of a short horizontal bar are " carried. This bar is of a square figure in its transverse section, " but with round or bead-like projections on the angles at the

" ends of the bar. The central portion of this bar is perforated " to correspond to the number of shuttle boxes to be actuated. " In front of the rocking lever and parallel thereto, is fitted a " small rectangular frame, which is bolted to the side standard " of the loom; within this frame there are arranged two or more " sliding pieces moving to and fro in a horizontal plane. The " slides are of a cruciform figure. The backward extremities " form pins which enter the perforations in the square bar, when " one of these is brought opposite to the end of the slide. If, for " example, two shuttle boxes are to be actuated alternately a hole " is made through the bar opposite the extremity of one of the " slides, and at right angles to the first hole a second is formed " corresponding to the second slide. Above one end of the bar " is arranged a catch lever, which may be brought into gear with " the beaded end of the bar at pleasure. With this arrangement, " when the tappet shaft gives motion to the rocking lever, the " catch causes the bar to turn upon its axis one fourth of a " revolution, and it is held in this position while free from the " catch by a spiral spring at the side of the rocking lever. As " the square bar is turned partially round it presents a solid " surface to the end of one slide, which is consequently pushed " forward, and one end of the vertical or T part of the slide " causes a rocking frame, which is arranged parallel to the " vertical parts of the slides, to turn upon its axis. The spindle " of the rocking frame carries at its outer extremity a lever which " is connected by means of a link to a weighted lever arranged " at the lower part of the loom framing. The front end of this " lever is connected to a vertical rod, the upper extremity of " which is attached to the back of the shuttle boxes, so that as " the slides are moved to and fro, the upper or lower end of the " rocking frame is pushed forward, and this causes one or the " other of the shuttle boxes to be brought into the proper posi- " tion for throwing the shuttle through the shed." "In con- " nection with the take-up motion of the loom is arranged a " wheel carrying round with it a pitch chain so disposed; when- " ever there is a change in the pattern, a knob on the chain lifts " or depresses the lever, and that when the weft breaks, or the " loom is stopped from any other cause, the lever is actuated so " as to keep the backward end clear of the end of the square bar, " and thus prevent its turning upon its axis."

[Printed, 4d. No Drawings.]

A.D. 1861, April 17.—N° 938.

JONES, Thomas, and MALLINSON, George.—(*Provisional protection only.*)—“Certain improvements in the manufacture of “ piled fabrics.” “The fabric is woven in a loom of the ordinary “ construction, with the weft floating over the warp, or the warp “ floating over the weft, so as to form diagonal races, which races “ when cut form the pile.”

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 18.—N° 949.

STEVENS, Charles.—(*A communication from Jean Joseph Thiberge.*)—This invention relates to “bands for transmitting “ motion to machinery.” “The bands are woven of cotton and “ thread, or entirely of cotton. The strength is obtained by the “ mode in which the warp is prepared, the slay arranged, and the “ shuttle worked. The warp is prepared as follows:—The cotton “ best suited is that known as No. 10 or No. 12, well twisted in 16 “ or 20, and stretched; it must also be drawn in the warping, so “ that all the threads of the warp are perfectly stretched. In “ placing the warp on the beam, the threads must pass round “ several bars or rests, so as to be stretched as much as possible.” “ The slay must be close and strong, so that eight or nine threads “ of the warp can pass in each chamber, and the slay must be of “ exactly the same width as is to be given to the piece.” “The “ thread of weft is driven with the slay, and then again struck one “ or more blows with the sharp part of the shuttle to give greater “ consistency to the piece. The shuttle is of wood, but furnished “ in front with a piece of iron, so as to resemble the blade of a “ knife.”

[Printed,, 4*d*. No Drawings.]

A.D. 1861, April 19.—N° 963.

BRIERLEY, James Makinson.—(*Provisional protection only.*) “ Improvements in the manufacture of woven fabrics applicable “ to crinoline skirts and petticoats or other similar articles.” “ This invention consists in combining strips of steel, copper, “ whalebone, cane, or other suitable material with any fabric or “ texture of cloth during the process of weaving. The strips are “ wound on a *separate* beam, and the eyes of the healds, and also

" the reed, are adapted to allow them to pass, so that as the strips " move onwards with the warp they are woven into the fabric " according to any desired pattern."

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 19.—N° 973.

HUDSON, WILLIAM, and CATLOW, CHRISTOPHER.—" Improvements in looms for weaving." The patentees say—" Our " invention relates, firstly, to apparatus for releasing the shuttle " from pressure when in the box, and for arresting the motion of " the loom should the shuttle become 'trapped.' For these " purposes we employ a finger which feels for the shuttle, either " with or without the ordinary swell. This finger is mounted " upon the stop rod and is drawn continually towards the shuttle " box, but is kept therefrom, excepting at the proper periods, by " a compound apparatus, one part of which, regulated by an " incline and rest, is for the forward motion of the crank, and " another part, acted upon by a pin from the correcting rod, is " for the backward motion thereof. This apparatus is in connection with the usual finger which acts upon the 'frog.'

" Another part of our invention relates to the break used for " suddenly stopping the loom. To the usual break bar we attach " a rod, which is connected at its other end to a lever, placed so " as to be without the range of a revolving tappet while the loom " should be working, but when it is desired to arrest its motion " the said lever is brought within range of the tappet, and the " break is forced into action thereby. This change of position we " effect by connecting the aforesaid lever with the ordinary spring " lever.

" Another part of our invention relates to apparatus for governing the positions and tension of the warp for the shedding and " throwing the shuttle. We propose to employ a lever carrying " two bars or rollers, the one situate above and the other below " the warp. This lever is caused to turn upon its centre by an " excentric or other means, so as to level the warp for the shedding and to allow it to rise when the shuttle has to pass. " Another part of our invention relates to looms in which a short " connecting rod is employed between the crank and a projecting " part from the slay, and consists in applying a spring to the " said slay in order to arrest the crank over the dead centres."

[Printed, 10d. Drawing.]

A.D. 1861, April 23.—N° 1003.

CLARK, William.—(*A communication from Alexis Manigot.*)—" This invention relates to the application of a multiple roller to " jacquard looms for the purpose (when weaving stay gussets or " other analogous articles) of bringing back the weft of the fabric " parallel to the batten of the loom. At present, when manufac- " turing said stay gussets, it is necessary in the weaving to sup- " press a certain portion of the weft threads, which causes " considerable loss of time to the attendant in drawing out the " fabric, which he fixes by means of a pointer bar and brings " back the line of the weft parallel to the batten of the loom before " he can proceed with the weaving. All this may be avoided by " the employment of the multiple roller according to this inven- " tion applied to jacquard rollers, the tension being exerted " mechanically on those parts of the fabric requiring it while the " attendant proceeds with the weaving without interruption."

" Another part of the invention relates to the shuttle box." In the shuttle box are disposed two rods, on these rods slide the shuttle driver, but in order to prevent the thread from unwinding too much, when weaving at the sides of the fabric, a small stop is employed which is raised by the jacquard at the desired moment to prevent the shuttle running to the end of the box.

[Printed, 10*d*. Drawings.]

A.D. 1861, April 25.—N° 1041.

TEMPLETON, John Stewart.—" This invention relates to " pile fabrics of the class of that described in the Specification of " Letters Patent granted to James Templeton, and dated the " 13th day of April 1855 (No. 816), and the improvements aim " at the weaving of such fabric by power in a satisfactory " manner."

" A first improvement relates to the picking of the catcher, or " binding and ground wefts, and consists in picking these two " wefts simultaneously whenever the former has to be picked, " which is once for every four or other number of picks of the " latter. The shedding action is arranged to correspond with " this system of picking. The picking mechanism preferred, is " contrived so that the stroke of each picking stick is occasioned " by the interposition at the proper intervals of a detail in the

" path of a lever, which vibrates regularly every stroke or beat of " the loom.

" A second improvement relates to the arranging and working " of the catcher or binding warp, in relation to the ground and " dead or stuffer warps. The shed of the binding warp is kept " full open until after the first succeeding beat up of the lathe, in " consequence of which the binding weft is carried forward to " the fell, being thereby prevented from laying the fur. The " catcher warp is made to rise and sink about double the distance " of the ground and stuffer warps, whereby it is made to combine " with both the binding and ground wefts.

" A third improvement is designed to prevent the ground weft " threads from tending to draw together in pairs, which would " render the back of the fabric irregular and so defective. This " object is effected by arranging each binding warp thread " between two threads or combinations of threads of the stuffer " warp, and separated from the ground warp threads.

" A fourth improvement consists in applying a kind of mechani- " cal finger at one or both selvages, contrived to enter the angle of " the shed at the proper periods, and by opening and clearing it " to insure the weft being properly drawn or tightened, and a " good selvage being formed."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1861, May 4.—N° 1124. (* *)

BROOMAN, Richard Archibald.—(*A communication from Charles Lewandoski.*)—(*Provisional protection only.*)—" An im- " proved thread for weaving and other uses."

" The thread is composed of a quantity of floss silk, silk waste, " or silk resulting from the unravelling of silk fabrics, to which is " added from 25 to 75 per cent. of cotton, and the whole is carded " in order to obtain the mixed materials in a state proper for " spinning. Various means of producing mixed threads have " been proposed, but the object has always been to produce a core " of the inferior material and an exterior of the better material." " The chief object of the present invention is the intimate com- " bination by carding of the two substances without any attempt " at dissimulation, in order to produce an entirely different thread " *from any* heretofore produced. The cotton is not hidden, but " *is blended with the* silk ; the thread may be lustred if desired

" by any of the means followed for the lustring of threads. " For some purposes the cotton may be dyed before being mixed " with the silk, or the silk may be dyed, or both may be dyed " of the same or of different colors according to the effect to be " produced."

[Printed, 4*d*. No Drawings.]

AD. 1861, May 6.—N° 1134.

BLACKBURN, THOMAS, and **KNOWLES**, MARK.—" Improvements in machinery or apparatus for warping cotton, " worsted, and other similar materials, and in expanding combs " used in connection therewith, and also in springs used in the " manufacture of the said combs, which springs are applicable to " other purposes." The patentees say:—" First, instead of " making the slides at the sides of the warping mill in a vertical " position, we make four or more slides slightly deviating from " the perpendicular, so as to prevent the falling rods from pressing too heavily on the slack yarn when the machine is stopped, " and the operation of backing-off is being performed.

" Secondly, the cylinder, measuring roller, and the two rollers " immediately connected with the measuring roller, have their " axles or pivots placed on three or more small rollers inside a " boss, thereby causing them to work with very little friction.

" Thirdly, we give a positive motion to the slides which regulate " the falling rods; the said slides are connected together by a bar " or rod, and move simultaneously by means of a rack and " toothed wheel in communication with the starting and stopping " motion.

" Fourthly, we fix the wraith or comb for directing the threads " on the beams, so as to maintain an uniform distance between it " and that part of the beam upon which the twist is being " wound.

" Fifthly, to the combs used for directing the threads upon the " beams; we attach extra nuts to the ordinary expanding comb, " to throw the dents solid outside the flanges, and then by means " of a metal plate perforated, so as to vary the distance between " the teeth, and enable the operative to warp coarse and fine " yarns on the same beams, the threads being subject to an " uniform tension.

" Sixthly, in the manufacture of compound springs used in " making the expanding combs, instead of passing the two pieces "of wire through the nut and on the bar or mandril, we pass "them directly over the nut and on the bar, separating the wires "immediately before they fall on the bar or mandril, by means of "a small piece of steel or other suitable material, so as to cause "the compound spring to disengage itself from the mandril in a "straight manner and without curling.

"Seventhly, in improved modes of exerting pressure on the "warp beam, for the purpose of winding on more twist. The "shaft of the warp beam works in bearings, in arms or levers, "holding nuts, in which are screws of a coarse thread linked to "the shaft of the driving cylinder, so that according to the weight "of the nuts and the pitch of the screws, there will be more or "less pressure exerted upon the beam. The aforesaid arrange- "ment of screw and nut is also applicable to other purposes. "Or, instead of the screws and nuts, blocks and pulleys may be "employed for the same purpose, by attaching one block to the "shaft of the warp beam, and the other to the shaft of the driving "cylinder, and weighting as required the fall end of the rope."

[Printed, 1*s*. Drawings.]

A.D. 1861, May 6.—Nº 1141. (* *)

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Barthelemy Picard.*)—(*Provisional protection only.*)—"The manu- "facture of threads, cords, fabrics, felt, and pulp from the hop "plant."

This invention "consists in converting the stem and the root "of the hop plant into threads, cords, fabrics, felt, and pulp, and "this by any of the means followed for obtaining fibres from "similar vegetable substances."

[Printed, 4*d*. No Drawing.]

A.D. 1861, May 8.—Nº 1158.

BLACKBURN, THOMAS, and **KNOWLES**, MARK.—These improvements relate to looms. The patentees say :—"First, these "improvements relate to that part of the loom known as the "indexing apparatus, in which, instead of connecting the hooks "and the healds with toothed quadrant levers, we connect them "in a direct manner with twine or other suitable material, and "also connect together the said hooks, which are attached to each "side of the healds, so that when the latticework or pegs push

" the hooks off the lifters at one side, it will push the corresponding hooks off on the other side.

" Secondly, we make a similar arrangement to the foregoing, " and then connect the healds to the hooks by twine being passed " over pulleys to the healds in such a manner that both sides of the " healds or a whole stave shall be lifted uniformly, and make an " uniform shed. In both of these arrangements the bottom shed " is obtained in the usual manner by means of springs.

" Thirdly, we modify the foregoing arrangements by connecting " the hooks of one series of double lifters to levers, one for each " heald. The levers are attached at one end to the tops of " the healds, and connected at the other end by cords or wires to " other levers, which are attached to the bottoms of the healds. " Or we employ two series of double lifters, connected to two " sets of upper levers coupled together, to one set of which the " tops of the healds are attached. At the ends of one set of " levers are cords or wires connected to another set of levers, to " which the bottoms of the healds are attached. In both arrangements the upper and lower levers work simultaneously, and " dispense with the necessity of employing springs for pulling the " healds down.

" Fourthly, we maintain an uniform tension on the lags or " lattice in which the pegs are placed, for operating upon the " hooks which vary the shed, by attaching a spring to the small " frame supporting one of the rollers or cylinders which carry the " lags.

" Fifthly, we make the springs for bringing down the healds, " and giving the bottom shed in indexing machines made " according to the first and second parts of our invention, or any " other indexing machine requiring springs, tapering from the " centre to each extremity; the said springs, which may be either " single or compound, are applicable to other purposes.

" And sixthly, we make the drums for carrying the lags or " lattice of any suitable metal, instead of wood as hitherto " adopted."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1861, May 9.—N° 1171.

YEADON, JOHN. — (*Provisional protection only.*) — " Improvements in the manufacture of healds." " Instead of using cord " or band for forming the healds," the inventor employs " wire of "any suitable metal in short lengths, and flattens the middle "where the eye is placed, and also the ends which are joined to "the shafts. The eye is punched round, oval, oblong, or other "desired shape, and the ends are fixed into the shafts by gutta "percha cement."

[Printed, 4*d*. No Drawings.]

A.D. 1861, May 9.—N° 1174.

STEWART, JOHN. — (*A communication from Louis Joseph Fillion.*)—(*Provisional protection only.*)—"This invention relates "to a system or mode of renewing the cards used in jacquard "weaving mechanism."

"Under one modification two cards representing different "colors are taken, and the layers of paper which form the card "are slightly separated at the corner to a small extent by means "of a knife or other suitable instrument. The layers of paper "are then completely separated, and the layer or half of one card "is glued or otherwise cemented to the half of the other card. "The two remaining halves of the cards are in like manner glued "or cemented together, so that the four parts again form two "perfect cards, as the perforations in each half are covered by the "solid parts of the other half, and the parts, when joined in this "manner, are again ready for being punched."

"Another mode of making these renewed cards, where a greater "degree of stiffness is required, is to combine three layers of "paper together by cementing one layer of new card paper to the "surface of two old or used cards."

"Another mode of process consists in cementing one layer of "new card paper on to each half of the old or used cards sepa-"rately."

"Under another modification, which avoids the necessity of "unlacing the cards, the old or used cards have cemented to their "faces two strips of card paper, each piece extending from the "end or guide holes to the central holes, where the cards are "united or laced together."

[Printed, 4*d*. No Drawings.]

A.D. 1861, May 10.—N° 1183.

CURTIS, THOMAS.—(*Provisional protection only.*)—"Improve-"ments in the manufacture of healds." "Instead of the cords or "*bands at present* in ordinary use" the inventor employs "short

" wires having in the middle eyes of any required shape, and " formed at the top so as to fit and hook upon the top shaft, but " left at the bottom perfectly plain so that they may be free to " move transversely between two laths or shafts forming the " bottom of the heald. The top shaft is grooved in the middle " of the upper surface, so that the wires can be supported, if " necessary, almost behind each other, and thereby enable the " eyes to be adjusted to any degree of fineness of count."

[Printed, 4*d*. No Drawings.]

A.D. 1861, May 13.—N° 1208.

HEATON, Robert, and STOCKS, James.—(*Provisional protection only.*)—The inventors say:—" This invention relates to " looms for weaving checks or plaids, and consists in means or " apparatus applied which enable us to work eight leaves or " heddles, without the employment of a jacquard engine for such " purpose. We employ a small cylinder at the loom end, with " peg-lags and jacks for working four of the heddles. Underneath the heddles we place four levers at each end thereof, " hinged in their middles to fixings attached to the loom framing. " The said levers are connected at their ends respectively by cords " and pullies to the heddles, in such manner that when one of " the four heddles which are connected to the jacks is raised " thereby, one of the other four heddles is lowered, and so on " with respect to the other three, and when the connected " heddles are lowered, the others are raised by springs."

[Printed, 4*d*. No Drawings.]

A.D. 1861, May 13.—N° 1216.

VAUTIER, Antoine Constant.— The objects of this invention " are, first, to produce silk, or a fibrous material resembling " silk, from the mulberry tree, without the intervention of the " silkworm. Second, to produce fibrous materials, of silky and " other characters, from various other trees, shrubs, and plants. " Third, to obtain paper pulp." The patentee operates " on the " trees, shrubs, or plants, or on the bark rind, or leaves, or the " required part or parts of the trees, shrubs, and plants in a " moist, wet, or damp condition, preferring to carry on the process as continuously as possible." " The products may be " combed, carded, spun, woven, felted, or otherwise treated in "any ordinary manner of operating on fibrous materials, or converted into or applied as paper pulp."

[Printed, 6*d*. No Drawings.]

A.D. 1861, May 14.—N° 1225.

BULLOUGH, James, and BULLOUGH, John.—These "improvements relate to the weft stopping motion and the self-acting temples, being especially though not exclusively adapted to looms for weaving woollen goods."

The patentees say:—"To work the weft stopping motion we introduce an agent or suitable apparatus to act on the weft at any intermediate point in the length of the reed space, but more particularly in the unoccupied dents of the reed between the lists where more than one piece is being woven at the same time. Or we work the apparatus, technically called the fork, by making one of its prongs longer than the others, and thus allow the shuttle to run with more ease and certainty without impairing the rest board to the detriment of the running of the shuttle.

"Our improvements in the temple consist of the addition of an extra pointer at each side of it, and also in working the said temple or pointers, where there is no tappet shaft, by means of the treddle motion."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1861, May 15.—N° 1234.

WHYTE, Alexander, and MACDONALD, Malcolm.—"This invention relates to the manufacture of frills, ruffles, or frilled trimmings." "In practising the invention the frilled or gathered part and the plain or band part are woven together, the greater fullness of the frilled part being obtained by a special arrangement and working of the warps and heddles similar to that adopted in weaving what are termed 'crimped' goods. The fabric is according to one modification woven with plain bands or stripes alternated with full bands or stripes of widths corresponding to the size of trimming wanted. The fabric is then cut or divided along the centres of the full stripes, and (unless a double-edged frill is wanted) along the centres of the plain stripes; the fabric will thus be separated into comparatively narrow pieces, each having "a plain portion, and a full or frilled portion (or two frilled "portions), and the frilled part is completed by hemming its "edge."

[Printed, 4*d.* No Drawings.]

A.D. 1861, May 16.—N° 1255.

HUDSON, Bernard.—(*A communication from François Loret Vermcersch.*)—"Improvements in the construction of power "looms." "The improvements consist in, 1st, the mechanism "giving movement to the shuttle." "At each extremity of the "two sticks having movement communicated to them a strap is "fixed. These straps are also attached beneath the shuttle (bat-"tant) [lay] and are connected in the middle with other straps, "the ends of which are fastened to lathes [picking sticks] having "their centre of movement in small supports, and working at "their upper extremities between two drivers, and held together "at their lower extremities by a spiral spring serving to hold "back the lathes [picking sticks]."

2nd, the arrangement of the mechanism giving movement to "the blades." "An axle with its cog wheel, eccentrics, and pres-"sure lever, is placed outside the loom. The blades are put in "movement by levers placed vertically and having their centre "of movement in a support bolted to the frame of the loom. "These levers are furnished at their lower extremities with small "pullies working between the two knees of the eccentric."

"3rd, the application of Jacquard's machine with the improve-"ments to fancy weaving." Motion is communicated to the machine in the following manner:—"At the lower end of the "motive shaft an eccentric is placed, which in its rotary move-"ment presses a pulley and lever. The latter has its centre of "movement in a support bolted to the longitudinal cross piece, "and at its lower extremity a screw cramp is worked, the upper "end of the cramp being hooked to the other lever which is "mounted on a small axle furnished with two pivots resting in "supports. The lower extremity of the last-mentioned lever is "jointed to a small vertical lever, which in turn is jointed to a third "lever. This lever after traversing the two small uprights of the "machine, serving as guide, is prolonged beyond the loom, and "takes its centre of movement in a support, the lower extremity "of which is bolted to the cross piece. A moveable ruler is sus-"*pended to the lever, serving* to raise two hooks, together with

" their corresponding blade. This ruler oscillating between " two pivots is pressed by a small spring, so that when the lever " descends the ruler meets the hooks which have not been raised, " and which oblige the lever to oscillate without experiencing the " least resistance. The lever serves to raise the hinder blades " higher than the foremast ones." " All the hooks of the machine " are flattened as well as the holes of the needles which they " traverse."

" 4th, the mechanism giving movement to the shuttle boxes." The shuttle boxes are placed vertically and are guided by a rod. " At the two extremities of each of the boxes a second rod is " hooked, which also hooks to a screw cramp, which in turn is " attached to a lever having its centre of movement on a small " axle fixed in the support of the cross beam. Towards the end " of this lever, as well as its extremity, pass freely two small " screw cramps, each of which is hooked to a lever. These levers " have their centre of movement on a small axle held in the support of the cross beam, each extremity of the levers being " attached to the corresponding hook."

" 5th, the new mechanism giving a variable movement to the " working of the shuttles." The picking sticks are actuated by cranks acting on cams or levers attached by straps to the picking sticks. And the variable movement is given by levers sliding the cranks on the shaft; the levers are connected by rods to hooks in the jacquard.

" 6th, the new mechanism for drawing back the thread of weft." The weaver presses by his foot on a lever which is connected to another lever which transmits the movement to the jacquard machine.

" 7th, the mechanism for rolling up of the cloth." The gudgeon of the cloth roller carries a ratchet wheel actuated by a catch attached to a lever which is drawn back by the lay and turned so as to wind up the cloth by a spring.

" 8th, the mode of unrolling the warp." A cord is passed two or three times around one end of the warp beam, one end of the cord is attached to a lever connected to the lay, the other end of the cord carries a weight. At the other end of the beam a similar cord is adapted, the inner end of which carries a small weight and the outer end a much heavier weight.

" 9th, a new arrangement for stopping the loom." " A little " above the breast beam of the loom a lathe or rod is placed, "capable of being moved by the hand of the weaver. One end "of this rod crosses the upright of the frame, and the other "end is jointed to a small horizontal lever fixed to the upper "extremity of a small axle, which bears at its lower extremity a "fork, between which a vertical spring lever is adapted. In order "to stop the loom the workman has only to draw the lathe or "rod towards him."

"10th, the new mechanism for hand weaving." "If the looms "are destined for hand weaving, the pulley bearing the strap is "dismounted and replaced by a fly wheel furnished with a handle "jointed to the end of the horizontal lever which is moved by the "hand of the workman, the other end being jointed to the "vertical lever, which is in turn jointed to a support nearly on a "level with the ground."

"11th, the movement of the batten (battant)." The driving shaft is fixed in a direction from front to back of the loom, and carries a crank connected to a bell-crank lever which is connected to the batten.

"12th, the new mechanism giving movement to the shuttle "boxes." The shuttle boxes are connected to a lever which is actuated by a cam; the cam is turned so as to raise or lower the shuttle boxes by means of hooked levers connected to the jacquard machine.

"13th, new mechanism giving motion the jacquard machine." The "motive shaft" carries two eccentrics which actuate two levers, one of which is connected to a lever which raises the knives of the jacquard machine, the other lever is connected to a lever carrying a perforated plate on which the hooks rest which have not been raised.

[Printed, 2*s*. 3*d*. Drawings.]

A.D. 1861, May 17.—N° 1264.

TURNER, Archibald.—This "invention of improvements in "the manufacture of elastic fabrics consists in using in such "manufacture compound warp threads composed of an ordinary "warp thread with a colored thread wrapped round it, or the "compound warp may be composed of a colored ground thread "with a white thread wrapped round it."

[Printed, 4*d*. No Drawings.]

A.D. 1861, May 20.—N° 1282. (* *)

SIDEBOTTOM, John. — "Improvements in cop tubes and "partial tubes, and in apparatus for holding them on to the "spindles of mules for spinning and doubling, also improve"ments in the construction of the skewers for shuttles and "winding machines."

The first part of this invention consists in making the partial cop tubes described in the Specification of Wainwright and Bradbury, A.D. 1857, No. 1992; "(such partial tubes being tubes "with a slit or opening made in one side), of a suitable conical "form instead of cylindrical as heretofore customary, and in "providing apparatus for or means of holding the said conical "partial tubes in a concentric position upon the spindles of "mules for spinning and doubling. Part of the invention is also "applicable to conical cop tubes, which are not slit so as to "form what are called above partial tubes."

The improvements in the construction of the skewers for shuttles and winding machines "consist in making them with a "conical projection or with a shoulder on which the conical tube "or partial tube fits, and by which it is held concentric with the "skewer."

[Printed, 8*d*. Drawing.]

A.D. 1861, May 20.—N° 1286.

DONISTHORPE, George Edmond.—"This invention has for "its object improvements in sizing, drying, and warping yarns "for weaving. For these purposes, in order that warp beams "of looms may be dispensed with, and the ordinary warping of "yarns on to long beams be avoided, the yarns to form a warp "are unwound from the cops or bobbins in comparatively small "quantities, and are subjected to the sizing process; they are "then wound on to short bobbins made with very thin walls or "flanges, so that by a series of such bobbins being placed end "to end on a square or other formed shaft, they may constitute "the warp beam of a loom." "The yarns as they come from "the cops or bobbins are subjected to the sizing process, and by "reason of thus using short bobbins with thin walls or flanges "on a shaft to constitute a warp beam each quantity of the warp "suitable to fill such a bobbin may be sized at one time, and

" after being sized and pressed, such quantity may be dried by " being passed spirally round two rollers (one or both being " heated), and thence directly on to the bobbin, which is to serve " as part of a warp beam, and thus at one winding the yarns " will be sized, dried, and warped ready for weaving."

[Printed, 1s. 4d. Drawings.]

A.D. 1861, May 21.—N° 1290.

BARLOW, HENRY BERNOULLI. — (*A communication from Hyppolite Victor Hermite.*)—" Certain improvements in looms for " weaving." "The object of this invention is to arrest the " motions of the loom when one or more of the warp threads " breaks; the mechanism for effecting this consists of a series of " plates mounted on two axles, each plate having a hole through " which a warp thread drawn; near these plates are feelers which " have a reciprocating or rotary motion imparted to them by the " batten or other convenient part of the loom. When a warp " thread breaks, the plate through which it passed comes in con- " tact with the feeler, which either brings a catch into operation " for arresting the motion of the batten, or moves the driving " strap from the fast to the loose pulley, or otherwise stops the " loom."

[Printed, 6d. Drawing.]

A.D. 1861, May 27.—N° 1326.

SMITH, WILLIAM, LORD, JAMES, and BARLOW, HENRY.— " Improvements in looms for weaving." "This invention con- " sists in making the lathe to run on rails, slides, or spindles, and " dispensing with the lathe swords and swing rails."

[Printed, 6d. Drawing.]

A.D. 1861, May 31.—N° 1357.

HENRY, MICHAEL.—(*A communication from Jean Henri Albigès.*) —(*Provisional protection only.*)—" Improvements in the manu- " facture of shirt fronts, and in producing fabrics or materials for " the same." " Hitherto there has been a mode of manufac- " turing shirt fronts by hand, in which three distinct operations " have been required. First, a pattern, grouping, or arrangement " of plaits has to be marked out; second, the threads as indi- " cated by the marking out have to be withdrawn; third, the

" parts whence the threads have been so removed have to be " brought together to form the plaits." " It is proposed to pro- " duce and employ fabrics in which the intended pattern or " arrangement of plaits is indicated by coloured threads on white " grounds, or white threads on coloured grounds, or unbleached " threads on bleached grounds, or threads differing in size or " thickness, preparation, treatment, or appearance from the other " threads of the fabric. These indicating threads can be intro- " duced or inserted during the weaving or manufacture of the " fabric in the required position or arrangement, so that the first " or marking-out process ceases to be necessary. Or fabrics may " be produced and employed so woven or manufactured as to " leave the necessary spaces or absence of threads in the proper " parts according as the pattern or arrangement of plaits requires, " whereby the second process is also dispensed with." " Or the " aforesaid fabrics may have a number of colored threads, or " threads of two or more different colours inserted, and arranged " to produce white grounds with coloured plaits, or coloured " grounds with white plaits, or coloured grounds with plaits of " another colour, or white or coloured grounds with plaits of two " or more different colours."

[Printed, 4*d*. No Drawings.]

A.D. 1861, May 31.—N° 1358.

HUNTER, WILLIAM.—" Improvements in looms for weaving." " This invention comprises improved mechanism for actuating " changing shuttles, and improved arrangements for shedding the " warps when the shed has occasionally to be kept open for more " than one pick. In one modification of changing-shuttle " mechanism the ordinary vertically-shifting shuttle box with two " or more cells is used. This shuttle box has fixed to it a rod " passing down across the axis of the lathe, near which axis the " rod has jointed upon it a short link, passing up to an arm " fixed upon a back rod moving vertically in a plane about parallel " to the lathe in its midway position. The back rod has its " lower end entered through a guide eye, whilst its upper end is " jointed to a horizontal lever centered on a stud or spindle pro- " jecting laterally from the loom framing, a counterweight being " connected to the back end of this lever, so that the action of " shifting the shuttle box is positive in the downward as well as in the upward direction. Upon the spindle of the horizontal lever there is mounted a barrel, formed with inclined ridges (or their equivalent), arranged to act by means of a fork or pin upon a lever jointed to the front end of the horizontal lever. This secondary lever is also hung upon the spindle, about which it and the primary lever move as one. The back end of the secondary lever is arranged to be acted upon by a species of gab lever disposed vertically, and made to reciprocate by means of a link and eccentric pin carried by the low or second-motion shaft of the loom. The gab lever is formed with notches having inclined sides, some of which notches may be in separate adjustable pieces fixed to the sides of the lever. The secondary lever moved laterally by the barrel is acted upon by the gab lever, so as to enter one or other of the notches, and is thereby made to assume a corresponding position vertically, and so shift the shuttle box. It will be understood that there are two or more gab notches according to the number of shuttles, and that these notches are in different positions, both horizontally and vertically. When the eccentric action carries back the gab lever, the secondary horizontal lever on which it acts is free to be moved laterally by the barrel, should the pattern then require it, and on the return forward of the gab lever, a different notch coming into action causes the required change of the horizontal levers and shuttle box. The barrel is actuated by catches, which may be conveniently carried by the gab lever, and the action of the catches is determined by means of jacquard apparatus or similar pattern mechanism."

"A modification of pattern mechanism which it is proposed to adopt, consists of an endless chain of wire links arranged with projecting points at the proper parts; this endless chain being carried on a reciprocating frame which causes the projecting points to act on the barrel catches, the same reciprocating motion being contrived to effect the gradual moving round of the endless chain.

"In another modification of changing-shuttle mechanism a rotating shuttle box is used. This shuttle box is mounted so that the shuttle in action is the lowest of the series, the picking action being direct and from below."

"In arranging two-heddle leaf looms for weaving tarleton, corded, or similar fabrics according to this invention, a single cam is used, which forms one shed by direct action, whilst the "other shed is formed by the reaction of a spring. Then when "a shed has to be kept open more than one pick, for the purpose "of throwing in more than one weft to form a cord, the treadle "or lever acted upon by the cam is held down by contrivances "regulated by the pattern mechanism."

[Printed, 10*d*. Drawing.]

A.D. 1861, June 1.—N° 1371. (* *)

CORADINE, THOMAS. — "Improvements in machinery or "apparatus for cutting or dividing metal or other sheets or "plates."

A light description of machine made according to this invention is applicable for cutting card, pasteboord, &c. into jacquard cards, tickets, &c. A pair of massive upright standards are firmly connected, and contain bearings for a pair of horizontal shafts which are arranged vertically a slight distance apart and geared together. The shafts are provided with two or more pairs of steel cutting or shearing rings, which are adjusted or held in position by screw nuts fitted upon the shafts screwed to receive them. The cutting rings are keyed on to the shafts by tongues entering keyways, cut longitudinally through the screw threads of the shafts, and which do not interfere with the longitudinal adjustment of the nuts. A lateral guide is provided, against which one side of the sheet or plate is laid and which defines the width of the first cut, the widths of the other cuts being determined by the distances apart of the respective pairs of cutting rings.

[Printed, 10*d*. Drawing.]

A.D. 1861, June 4.—N° 1395.

HARGREAVES, STEPHEN, HOLDEN, ROBERT, and HOLT, HENRY.—"This invention consists in certain improved self-acting "arrangements for stopping the motion of the sizing machine "or tape leg when any of the warp threads break." The patentees "use a loose reed having upon it projections which can come "in contact with the stopping and starting handles when the "reed falls forward. When one or more of the warp threads "break, an entanglement takes place that cannot pass the reed, "which is consequently pressed forward, so that the projections "upon it give motion to the handles and stop the machine. The "heald staves of the heald and the reed are connected together "by cords or links, so that if motion should be given to the heald, "it will be transmitted to the reed; and, therefore, if a breakage "should take place between the reed and the heald, the entanglement "would press against the heald, which, by means of the "cords or links, would pull forward the reed and act upon the "stopping handles, and stop the machine."

[Printed, 6*d.* Drawing.]

A.D. 1861, June 6.—N° 1420.

COLES, Henry Thomas.—"Improvements in mechanism or "apparatus for locks and bolts and other fasteners; gun locks "and gun breeches; catches for weaving shuttles; double screws; "rifles, pistols, other fire-arms, and ordnance; weaving traversers; "winders; sewing, weaving, netting, and other machines, and "self-acting claws and grapplers." As regards weaving, the patentee proposes "doing away with throwing the shuttle by carrying "it instead of throwing it." He employs two "turning "pieces" forming "grapplers," which "are acted on by a cog "shaft passing through a hollow shaft," "to which the two "pieces are fixed by a pivot;" "this hollow shaft is fixed in a "weaving machine," "with a shuttle placed in its grippers, and is "passed through the warp, instead of the shuttle being thrown; "it thus takes the shuttle through the warp and leaves it on the "opposite side and retreats, the warp is then passed; the warp "being passed it then fetches the shuttle back, and the warp is "again passed."

[Printed, 1*s.* Drawing.]

A.D. 1861, June 6.—N° 1429.

TURNER, Henry, and YATES, Thomas.—"Improvements in "the manufacture of elastic web." In making elastic webs the patentees "open two sheds on one and the same side of the india-"rubber and shoot them with two different sorts of weft, say "cotton in the lower shed next the india-rubber, and silk above "it on the face of the fabric, and separated from the india-rubber "by the cotton shoot; either one or both sides of the fabric may "be thus produced."

[Printed, 4*d.* No Drawings.]

A.D. 1861, June 7.—N° 1447.

WOOD, William.—" Improvements in looms for weaving." " This invention relates, firstly, to a method of working the healds " or heddles so as to cause them to dwell or remain up or down " any desirable length of time.

" Secondly, to improvements in the setting-up motion, so as " regulate the quantity of picks given according to the design or " pattern of fabric required.

" Thirdly, to a means of lifting all the catches except the run- " back catch, when desirable."

" Fourthly, to a means of stopping the loom when the weft " breaks, which consists of a horizontal fork placed at each edge " of the fabric, or at each end of the lay and moveable grates, " which meet the said forks at every pick, being actuated by " levers from the picking shaft, and capable of passing the " fork when no weft is across, coning in contact with a sliding " needle, which causes the tongue of the stop rod to meet the " spring prongs, and thereby stop the loom instantly with the " shed of the broken pick open.

Fifthly, of a sliding weft carrier for removing the weft from the " fork at one end, whilst the grate at the other is acting on the " newly-picked weft, which is operated by a lever and tappet " from the picking shaft.

" Sixthly, the invention relates to a 'weft clicker' or self-acting " temple, which consists of two short levers hinged to the breast " beam, one at each edge of the fabric, and operated by a lever " and tappet from the picking shaft. In each of the short levers " is a pin, which is brought in contact with the weft at each pick, " which on the return of the shuttle holds the weft by being " looped around, and thereby resists the drag of the shuttle " instead of the warp threads."

[Printed, 10*d*. Drawing.]

A.D. 1861, June 10.—N° 1470.

WHITEHEAD, James.—These improvements relate to looms in which two or more shuttles are employed. " Instead of the " usual single chain of tappets for raising and lowering the drop " box, or for otherwise changing the position of the shuttles," the *patentee employs* " two or more chains of tappets, which are carried " *over small drums*, either connected together or working inde-

"pendently of each other. The chains of tappets are moved "round by star wheels of the usual construction, or other suitable "mechanism, either simultaneously, differentially, or alternately, "and the connection between the chains of tappets and the "shuttle box is effected by levers and rods, as now customary. "Instead of the chains of tappets above referred to, two or more "chains of lags and pegs, or perforated plates, or other equivalents, may be used."

[Printed, 8*d*. Drawing.]

A.D. 1861, June 10.—N° 1476. (* *)

OLDROYD, JOHN.—(*Provisional protection only.*)—"Improvements in combining or mixing various colours of wool or other "fibrous substances in the preparation of yarns for textile "fabrics."

"The improvements consist in forming separate lumps or tufts "of wool or other fibrous substances of various or different "colours by passing rovings of such various colours betwixt card "rollers or cylinders, and stripping or doffing the same in lumps "or tufts on to a creeper or travelling apron, which conducts "them to the ordinary doffer of the carding engine, to which they "are attached by means of a rotating brush at a point thereon "previous to its contact with the surface of the swift or main "cylinder, whereby such various coloured tufts are combined or "mixed with the ordinary cardings, and thus produce irregular "and parti-coloured or various coloured yarns."

[Printed, 4*d*. No Drawings.]

A.D. 1861, June 13.—N° 1520.

ILLINGWORTH, JONAS. — "Improvements in arranging "sizing houses, brew houses, dye houses, and other houses "and chambers to facilitate the removal of steam set free "therein; also in the construction of troughs for sizing cotton "warps, and in boxes or other receivers for holding such sized "cotton warps." "The object of part of the improvements is to "cause the steam employed in various processes to pass freely "away from the apartment or chamber in which it is employed."

"The sizing troughs when made of wood to be bolted together, "so that the bolts can be seen on the parts they hold together, "*with guides of suitable* materials secured without bolts and

" screws inside or going into or through the trough sides, and so " that the guides will leave or may be removed from their places " without breaking the warp; also rollers of suitable materials to " run with shaft and pedestals made of charcoal iron or other " cast iron. The boxes or other receivers for the wet warps are " made of wirework, or are otherwise reticulate, adapted to admit " the free passage of air thereto and therethrough."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1861, June 14.—N° 1531.

LANGLADE, PIERRE. — "This invention has for its object " improvements in the manufacture of tapestry and other " weavings." The patentee employs "a loom composed of two " beams or rollers, between which the warp is distended. Each " roller is furnished with a ratchet wheel, into the teeth of which " a click or pawl enters, by means of which the beams are pre- " vented from turning in such manner as to allow the warp to " become slack. The harness by which the threads of the warp " are crossed is distended between two rollers; on the axis of one " of these rollers is an arm from which a connecting rod passes " to an arm on the axis of a treadle, so that by depressing the " treadle the roller may be rotated, and the threads of the warp " thus crossed. The roller is brought back to its first position " by means of a spring when the treadle is not held down, and " the threads of the warp are thus crossed in the opposite direc- " tion. The threads of the warp are divided into a number of " equal sets by colored threads, so that the workman may readily " count the threads. In front of the loom are two rollers, be- " tween which is distended a sheet of paper or other material " divided into a number of equal squares, and in each line of " squares is marked the number of points for each successive " color for one line of the fabric; and in order that a workman " in weaving may readily follow the pattern there is placed hori- " zontally across the band a straight rule, along which a pointer " slides; to this pointer is attached a cord, the end of which is " connected to a pulley on the axis of which is a ratchet wheel; " to this ratchet wheel motion is given by a click or pawl worked " by a treadle; and each time the treadle is depressed the pulley " is rotated to such an extent as to cause the pointer to move " along the rule a distance equal to the length of one division of " the pattern. The workman when commencing the weaving

" places the pointer at the left-hand end of the rule, so that it " points to the first square at the left-hand corner of the first line " of the pattern; he then crosses the threads of the warp by " depressing the treadle which actuates them, and passes a " shuttle containing the color marked on the first square of the " pattern through the crossing of as many threads of the warp as " are required by the pattern, the number being marked on the " square in addition to the color. The workman then causes " the pointer to move forwards along the rule to the next square " by depressing the treadle which moves it, and passes a shuttle " of the color marked on the second square through the crossing " of the requisite number of threads of the warp, and so on to " the end of the first line of squares of the pattern, a fresh " shuttle being used for each successive color, even if the same " color is used more than once in the same line. The threads of " the warp are then crossed in the opposite direction, the pointer " is moved back to the left-hand end of the rule, the pattern is " moved so as to bring a fresh line under the pointer, and the " same operation is repeated." " In order to hold the weft " threads securely in the fabric," the patentee always attaches " one thread to another, never introducing a shuttle into the " crossing of the warp threads without first passing it around the " preceding shuttle thread, by which means the threads will be " securely held."

[Printed, 1*s*. Drawings.]

A.D. 1861, June 15.—N° 1536.

KNOWLES, THOMAS, **ALDRED**, PETER, and **HAWORTH**, JOHN. — (*Provisional protection only.*) — " Improvements in " machinery or apparatus for raising serrated surfaces on " rollers." This " invention relates especially to the rollers of " temples used in weaving fabrics, and consists of a duplex " machine with two tools, one at the back and the other at the " front, the faces of the said tools having surfaces made to " correspond with the design or peculiar form of the serrated " surface required on the rollers. The roller and tools being " placed in the machine a revolving motion is given to both the " tools and roller, and as they come in contact the rollers receive " the impression from the tools, thus giving or raising the peculiar " serrated surface required."

[Printed, 4*d*. *No Drawings.*]

A.D. 1861, June 17.—N° 1552.

TODD, William, and TODD, Jacob.—This invention "relates " to an improved picking motion for looms, wherein the novel " arrangement of mechanism employed shall cause a direct action " to be given to the picking apparatus by a peculiar arrangement " of studs, plates, or fingers, so formed and adjusted in their " respective levers that by their being brought into contact " from two opposite centres a sharp, clear, or slightly yielding " motion shall be transmitted to the picking stick without any " deteriorating wear to the picking apparatus employed. This " direct action between two centres is obtained by means of a " lever arranged and secured upon any convenient shaft, to which " a revolving or vibratory motion is given, this lever being supplied with one of the afore-mentioned studs, plates, or fingers, " which shall, as the said lever is caused to revolve or rotate, be " brought into direct contact with a similar stud or finger " adjusted in like manner to a bell-crank lever, having its " fulcrum attached to the frame of the loom, such lever at its " opposite end being connected with the picking stick, causing " the revolving stud in its action to give a direct blow to the " stud in the bell-crank lever, thereby transmitting motion to " the picking stick, the studs, plates, or fingers at their point of " contact being flattened, bevelled, or otherwise, so that in their " action by such forms they shall give a sharp, clear, or slightly " yielding motion to the picking stick."

Secondly, the improvements "relate to a novel arrangement or " swivel or compound joint for supporting the base and forming " the fulcrum of 'picking stick,' the said joint being retained " and held in position for working by means of a bracket " attached to the frame of the loom, such arrangement allowing " the action of picking stick to be free and easy."

[Printed, 1*s*. Drawings.]

A.D. 1861, July 2.—N° 1677.

PAIGNON, Jacques Philippe Eugène, VAUDAUX, Joseph Marie, and GAGNIÈRE, Gaspard.—These improvements relate to jacquard apparatus, the object "being to allow the substitution of properly perforated endless paper in lieu of the " pasteboard pattern cords." The "improved jacquard apparatus " *is arranged in such* manner that the endless paper applied on "the cylinder or perforated square axis is pressed against the needles only while the hooked wires or vertical skewers are resting with their lower end on the barness board, and thus being kept in equilibrium allow of the slightest pressure exerted against their respective needles to push back these latter. The friction roller by which the cylinder is driven towards the needles or carried back therefrom, works in such manner in the curved iron as not to push the cylinder towards the needles while the griff is descending, and by means of another smaller roller the pressure of the paper against the needles is exerted only towards the end of the downward stroke of the griff, whilst the larger roller serves for continuing the action of the press during the upward stroke of the griff."

"In order that the perforated endless paper should always apply itself properly against the flat sides or surfaces of the cylinder or perforated square axis, the said paper is divided over its entire length by means of equadistant transverse folds or creases into a series of divisions, each corresponding in width with one side of the cylinder, and so as to make each of these divisions represent a jacquard card."

[Printed, 8*d*. Drawing.]

A.D. 1861, July 3.—N° 1687.

WOOLLATT, JOSEPH.—(*Provisional protection only.*)—"Improvements in looms." This invention relates to modes of working several shuttles. The shuttles are placed "in a box at each end of the loom apart from the slay or lathe, which boxes work in guides attached to the framework, and moved as required by racks and pinions, the said pinions being turned, as required, according to the pattern by a jacquard motion."

[Printed, 4*d*. No Drawings.]

A.D. 1861, July 13.—N° 1766.

TOLHAUSEN, FREDERICK.—(*A communication from Georges Duplay.*)—"Improvements in looms for weaving ribbons and other fabrics." "The object of this invention is a batten so arranged that any number of shuttles may be employed for weaving figured fabrics." "The shuttles are mounted on racked carriers and in multiple moveable sliding frames, by which means they may be thrown in and out of gear with a

" series of driving pinions keyed on parallel shafts; said parallel " shafts are arranged in a vertical plane, and simultaneously set " in alternate motion by means of an endless chain, which derives " its motion from a shaft and bevel gear, which is driven by " another endless chain, to which the operator imparts a reciprocating motion by means of a sliding carriage provided with " right and left hand clicks; said sliding carriage is put in motion " by the ordinary means, viz., crank and connecting rod."

[Printed, 6*d*. Drawing.]

A.D. 1861, July 15.—N° 1769.

BRIGGS, Edward, and FEARNLEY, Samuel.—The patentees say,—" Our invention consists, first, in an improved mode of " weaving piled fabrics. We divide the pile warp into two parts, " and first give three picks of weft to form the ground; then a " wire is introduced into the shed under the two pile warps; " then the pile warp that was last bound in is lowered, and three " more picks are thrown in to form the ground. The pile warp " that has been lowered is now raised, and the other pile warp " is lowered; then three more picks are given, and another " wire is introduced under the two pile warps; then three more " picks are given to form the ground, and the operation proceeds " as before. The object of this improvement is to economise " time in weaving silk velvets and other piled fabrics.

" The second part of our invention consists in certain improvements in the letting off and taking up motions of looms for " weaving various descriptions of fabrics. The ratchet wheel " employed in the said motions consists of a series of eccentric " or oval rings of ratchet teeth cast on a disc, which rings are " separated from each other by flanges." " The catches for working the ratchet wheel are connected to a lever hinged to the " presser rod or roller, which (as in looms of the ordinary construction) bears upon the warp or the cloth beam.

" Another mode of constructing the ratchet wheel is with two " or more coils of teeth cast on a disc, and either separated, by " flanges as above referred to, or made level, so that each catch " may be free from one coil of teeth before it acts on the teeth of " another coil.

" Another mode of making the ratchet wheel is by placing " several rows of ratchet teeth of different lengths side by side, or

" concentric to each other. The catches for these ratchet wheels " would receive a graduated motion by levers from the warp " beam or cloth beam.

" Another part of our invention consists in applying levers to " the warp beam and cloth beam for reducing the distance " traversed by the catches to or from the centres of the ratchet " wheels."

[Printed, 10d. Drawing.]

A.D. 1861, July 15.—N° 1783. (* *)

DE LA PROVOTAIS, Emile Georges Fermier.—" Extracting the fibres from genista scoparia (broom), and their applica- " tion to manufacturing paper and fabrics, and also treating the " washing waters so as to obtain dyeing products therefrom."

" The treatment of the broom for the purpose of preparing the " fibres consists of several operations, viz., tke collecting of the " broom; its hasty retting in water heated by steam; its barking " or decortication by being passed between hard stone cylinders; " the separation of the fibrous from the ligneous part; the treat- " ment of the ligneous part for its conversion into threads similar " to hemp or flax threads."

There are described also processes for converting the broom into pulp for the manufacture of paper and for obtaining coloring matters and salts from the waters employed in the treatment of the material.

[Printed, 4d. No Drawings.]

A.D. 1861, July 18.—N° 1804. (* *)

TAWELL, Samuel.—" An improvement in or addition to the " selvages of laces and other woven fabrics."

The patentee says, — " All laces, edgings, quillings, and " flouncings, as heretofore made, have required the insertion of a " thread called a ' whipping thread ' (which is whipped or sewn " over or through the selvage by hand), for the purpose of " drawing the lace or other article to produce fullness. The " present improvement has for its object to supersede the subse- " quent operation of hand whipping, and consists in the introduc- " tion of a whipping thread by the machinery in the process of " manufacture, either by passing the thread spirally round, or " backward and forward through ths holes of the selvage. The

" fabrics thus made may be used plain, or may have any required " fulness given to it by drawing and securing the whipping " thread."

" In carrying out this improvement, the whipping thread may " be either a bobbin or a warp thread. It is preferred, however, " to use a bobbin thread. As is well known in making lace in " breadths on any machine, a back selvage thread is generally " used; the whipping bobbin thread, therefore, should be put " into the machine next to the back selvage thread. Supposing " the back selvoge thread to be twisting with its own bobbin " thread, then, once every one or more holes, according to the " length of stitch required, it should rise or fall, as the case may " be, over the whipping bobbin thread, and then fall or rise back " again, and twist with its own bobbin thread again. The " whipping thread not being operated upon by any other thread " will remain loose, so as to allow of the lace (or other fabric) " being gathered up as may be required."

" Various other modes of laying in the whipping thread may " be used."

[Printed, 4*d*. No Drawings.]

A.D. 1861, July 18.—N° 1805.

ELLIOTT, ARTHUR.—This invention relates to apparatus for changing the shuttle box and for working the healds of looms. The patentee makes use " of a tappet which is made in two parts, " one portion being a disc having two bearings on its face. At " right angles to the tappet shaft, between which the tappet " portion for working the star wheel which raises or lowers the " shuttle boxes moves on a pin in such wise as to allow the " tappet portion to approach or recede from the face of the disc, " one side touching whilst the other is the reverse and vice versa. " On one end of the face of the tappet is a pin, projecting through " the face of the disc for the purpose of moving the star wheel " which actuates the shuttle boxes, this disc and tappet is placed " between the star wheel just mentioned and the chain which is " made of a much smaller pitch than usual, thus economising " space between the chain which is worked in the usual manner, " and the tappet is placed a lever which moves on a stud fixed to " the frame side, upon this lever is a V-shaped projection for the " purpose of moving the loose portion of the tappet from or " against the face of the disc. When the chain has prepared the

" lever for effecting a change in the position of the shuttle boxes, " that part of the face of the tappet in which the pin is fixed, is held " in contact with the face of the disc by means of a spiral spring, " in which position the pin projects through the disc, and moves " the star wheel for actuating the lever, which effects the change " in the usual manner. When no change is required in the shuttle " boxes, the V-shaped projection on the lever causes the opposite " parts of the faces of the disc and tappet to meet, thus withdrawing the pin from the position in which it could move the star " wheel; this same pin actuates the star wheel for moving the " chain, and another similar lever may be placed on the reverse " side of the tappet for the purpose of preventing the pin from " actuating the chain star wheel, thus allowing one shuttle to " make any number of picks required without change; by these " means a shorter chain can be employed; this last-mentioned " lever must be moved when wanted by the attendant."

For working the healds of looms, the patentee places " a number " of these tappets and star wheels together in a similar way to " that just described (one treadle being required to each star " wheel and tappet), any number of picks may be given, according to the pattern desired; in this case the tappets are made " double-acting, that is, one or more pins project from each side " of the face of the tappet."

[Printed, 10*d.* Drawing.]

A.D. 1861, July 20.—N° 1827.

HUGHES, Edward Thomas.—(*A communication from Jean Berjon and Alphonse Berthod.*)—This invention relates to the manufacture of woven seamless gloves. The patentee says, " I " weave them in an ordinary loom, with the assistance of the " jacquard machine; the shape of the glove being made by " pattern cards, and the material woven double, forming a kind " of pocket. A number of gloves are woven at the same time, " according to their size and the width of the loom. When the " piece is completed each glove is cut out or separated." It is proposed to employ materials having " a combination of torsion, " so as to arrange one twist to the right and another to the left " alternately." A reed is also employed " having crooked, curved, " or zig-zag dents or teeth, for the purpose of procuring elasticity " in the fabric."

[Printed, 4d. No Drawings.]

A.D. 1861, July 22.—Nº 1838.

WOOD, John Bland.—There improvements relate to prickers, and consist "in making from buffalo or other hides, parts of "hides, or other fibrous material, the picker in one solid piece or "block." This is accomplished "by tearing or cutting up the "hides, or parts of hides, reducing the shreds thus formed into "a more or less perfect mass or pulp by suitable mechanical or "other means, and subsequently moulding into the shape "required."

[Printed, 4*d.* No Drawings.]

A.D. 1861, July 24.—Nº 1862.

COOK, Henry.—This invention "relates to a novel arrange-"ment of apparatus for transferring the pattern from the paper "design to the cards or paper intended to be prepared for opera-"ting upon the jacquard apparatus employed in figure weaving." The "improved apparatus for effecting this object is analogous "in character to that used in the electric loom (invented by "Signor Bonelli, of Milan) for selecting the warp threads by "which the pattern is produced in figured weaving, the arrange-"ment of the operating parts or punches for perforating the "pattern cards or paper being obtained through the instru-"mentality of electro-magnets."

[Printed, 8*d.* Drawing.]

A.D. 1861, August 3.—Nº 1930.

HABERT, Pierre. — (*Provisional protection only.*)—"An im-"proved circular loom for weaving cloths of all kinds, either "plain or ornamented." "This circular loom is composed of a "cast-iron drum fitted on a vertical shaft. On a flange of the "lower part of the drum rollers are fitted, over which runs a "bevil toothed crown, actuated by a bevil pinion, which pinion, "keyed on a horizontal shaft, is caused to rotate by a hand "crank. The warp need not be previously dressed for weaving, "as in common looms; the threads forming this warp are wound "on cops or spools turning freely on spindles, properly disposed "in any required number outside around a lower cylinder. The "warp ascends from the cops up in the cast-iron drum; they are "guided between small rollers, and each thread thereof passes

" into a little hole pierced through a small blade placed betwixt " the teeth of two concentric circular combs. There are, of course, " as many blades as threads in the warp. The revolving toothed " crown carries a set of pinions, which gear together, and one of " them gears with a fixed toothed crown fitted at the top of the " drum; this combined movement will impel the shuttle which " runs round between the combs and over the thread guiding " blades. The revolving toothed crown carries also properly " shaped pieces, which, in their passage before and after the " shuttle, drive the thread guiding blades inwards or outwards, " causing thus the warp to be open or closed for the passage and " setting of the weft thread. The cloth is wound on a horizontal " cylinder suitably disposed above the vertical drum as fast as it " is woven."

[Printed, 4*d*. No Drawings.]

A.D. 1861, August 3.—N° 1931.

HENDERSON, John, and BROADLEY, James.—" Improvements in means or apparatus employed in weaving." The patentees say :—" The improvements relate first to an adaptation " or combination of means to facilitate the manufacture of carpets " and other pile fabrics.

" When weaving carpets and other pile fabrics by the aid of " longitudinal wires, the front or point ends of which are constantly in the loops of the last formed of the fabric being woven, " we find it a great advantage to form such parts of the wires " broad and flattened horizontally." " And we also apply a steam " box or other suitable heating means to the under side of the " fabric still on the wires."

" Also when using longitudinal pile wires of the character " referred to in the Specification of a Patent granted to Frederick " William Mowbray, dated the 21st day of May 1855, N° 1133, " we form such wires with nibs or projections standing up from " their upper parts to facilitate the correct laying over of the pile " warps when they have been shifted sideways to the extent " desired by the means adopted for that purpose, and we apply a " sliding bar to the front of the batten, and immediately above " the pile wires with points descending downwards to receive the " pile warps as they are raised between them, and then by endway motion given to such bar in the direction desired to effect " the *sideway shifting*." " We also attach to the hand rail of the lathe a moveable shell, which receives the upper rib of the beating-up reed, and being actuated in a lateral direction, causes the reed to remain stationary for a short time at a point near the ribs on the pile wires, the lathe being at the same time uninterrupted in its motion."

"The improvements relate, secondly, to means for the laying in of extra transverse or ornamental weft or surface thread, for the purpose of obtaining ornament in figures at certain parts of the surface of the fabric being woven, such as is now effected by what are commonly called 'swivel motions.'

"According to one arrangement the threads to be introduced are passed through heddles or healds, or such like means, operated by jacquard or pattern surface adapted to raise such threads into position to be taken by hooks, and thereby drawn under the selected warps."

"According to another arrangement, each thread to be so laid in, is carried by a bobbin supported by arms operated simultaneously and in such manner that each bobbin will be taken under the selected warps by one of a pair of arms, and there delivered to or taken by the other, other arms or releasers being employed to facilitate the change."

"By another adaptation, the bobbins are each carried by a segment, which is traversed in a curved groove, so as to pass to and fro between the warps as desired, such curved groove being open at the part where the warps lie.

"By another adaptation the threads to be introduced in pattern are carried by bobbins, by preference somewhat of the form of balls, and there are places provided to receive them in the batten under the warps. When these threads are desired to be introduced, the warps over which they are to pass are lowered, and the bobbins are raised out of these recesses and carried or thrown across such warps to fall into the other receptacles, and they are carried back again by being raised and actuated as required.

"Thirdly, the improvements relate to arranging the parts of Jacquard apparatus that one card may serve for two or more motions."

"Fourthly, the improvements relate to forming the picker spindle continuous from box to box in front of the batten, so as to avoid the necessity for supports thereto at the inner end of each box."

" Fifthly, the improvements relate to substituting for the wire " bars of the grates acting with weft forks, strands of india-rubber " or other elastic material, so as to prevent breakage of the weft.

" Sixthly, the improvements relate to the introduction of steel " or other wire or metal in the warp in weaving fabric for crino- " line, adapted to produce the required stiffening effect."

[Printed, 6s. 6d. Drawings.]

A.D. 1861, August 8.—N° 1968.

EASTWOOD, John, and EASTWOOD, Thomas Charles.—" A new kind of yarn, being a combination of refuse and waste " matters of fibrous materials, and the said fibrous materials and " the cloth woven therefrom." The patentees claim, " mixing " knotted or lumped silk, nibs, or knots, or lumps of silk of " various colors, with fibrous substances, and spinning the same " into a yarn, having knots or lumps of silk fixed therein, and " weaving said yarn into a cloth or fabric."

[Printed, 4d. No Drawings.]

A.D. 1861, August 13.—N° 2008.

HORNER, John Caspar.—(*A communication from Frederick May.*)—" Certain improvements in looms for weaving." " The " first part of this invention consists in applying a partially " rotary motion to a double or compound shuttle box, the posi- " tion of the shuttle box being governed by a pattern wheel fur- " nished with two or more rows of holes or pegs."

" The second part of this invention is applicable to looms in " which a drop shuttle box with six or other convenient number " of compartments is employed; the position of this shuttle " box is governed by means of a pattern drum, which is moved " round or to and fro by ratchet wheels and catches or other " equivalents. The fingers, acting in combination with the " pattern drum, traverse from one side of the loom to the other " on a slide. To the drop box is connected a rack, in which a " pinion gears; this pinion is worked by ratchet wheels, the " catches of which are put in motion when required by pegs on " the pattern drum."

" The third part of this invention is very similar to the second, " and is chiefly adapted to looms in which a drop shuttle box " with four compartments is employed."

[Printed, 3s. 2d. Drawings.]

A.D. 1861, August 15.—N° 2038.

KESSELMEYER, Charles William, and MELLODEW, Thomas.—The patentees say,—"Our invention relates to velvets "and velveteens, in which the pile is produced by weft threads "floated over warp threads," "and consists in various new "methods of combining the said weft and warp threads, whereby "various defects in the appearance of these fabrics, as hitherto "manufactured, are either modified or entirely removed."

"These defects are, first, a nicky appearance in tabby or plain "back velvets, running at right angles from selvage to selvage."

"Secondly, a cordy or ribby appearance in tabby or plain "back velvets, as well as in some makes of twilled back velvets "and velveteens, which ribby appearance runs parallel with the "selvages throughout the length of the piece, and is produced "by a tight race once or twice in every series of warp threads of "which the combination is composed."

"Third, a nicky or twilly appearance, running diagonally from "selvage to selvage across the piece in twilled back velveteens "and velvets, which only becomes visable after these fabrics have "been cut."

"The methods by which we propose to remedy or modify these "defects, are the following:—First, we obviate or modify the "nick running at right angles from selvage to selvage, by manu"facturing the fabrics with a ribbed back, or by manu"facturing them with a reversed twill back, shewing like plain "cloth on the back of the fabric, and having the twill on the "face side underneath the face weft floats, or else with any sort "of fancy or figured back, which will not prevent any two con"secutive face weft floats from meeting closely together. Another "method of making the nick running at right angles from "selvage to selvage less conspicuous, is by reducing the number "of face weft floats occuring between each two consecutive back "weft threads or binders which produce such nick, and discard"ing the other back weft thread or binder entirely, which peculiar "arrangement of warp and weft threads is, however, only appli"cable to fast pile fabrics made according to the principle of our "Patent of 16th August 1860, No. 1987."

"Second, we obviate or modify the cordy or ribby appearance "*running parallel* with selvages in tabby velvets of all sorts, as "*well as the diagonal* nick in twilled back velvets and velveteens,

" by an arrangement of the face weft floats with the back weft " threads or binders, whereby we more or less break the regularity " and uniformity of the series of face weft floats occuring between " each two of those back weft threads or binders, which cause the " nicky appearance running at right angles from selvage to selvage, and thus prevent these said back weft threads or binders " which cause such nick from being preceded and succeeded in " every instance by the same two face weft floats. By means of " this arrangement we are enabled to produce a tight race upon " every alterate warp thread in the combination, and by thus " preventing one race from being tighter than another we remove " the cordy or ribby appearance of the fabrics."

[Printed, 5s. 6d. Drawings.]

A.D. 1861, August 20.—No 2072.

PLATTS, JAMES.—" This invention relates to the arrangement " and construction of power looms which are more particularly " adapted for weaving the class of fabrics known as Scotch " carpeting."

" Under one modification or arrangement of the mechanical " parts the loom is fitted with an ordinary jacquard apparatus for " producing the predetermined figure on the fabric to be woven. " The motion of the jacquard barrel is derived from the crank " shaft of the loom by means of a disc wheel, cam, or other " equivalent therefor, or by levers from the bottom shaft, so as to " render the motion of the jacquard barrel automatic, and bring " the cards round in regular succession. The required sequential " movement of the shuttle boxes by means of which the different " coloured wefts are thrown across the shed in the required succession is obtained from the crank shaft. On this shaft is a pinion " which gives motion to a wheel arranged on a horizontal shaft " beneath, and carrying also a disc wheel, the periphery of which " is made of varying radii. Extending over the disc wheel is a " curved lever which is carried on a short shaft at the back part " of the loom framing ; the free end of this lever is connected " by means of a rod to a rocking lever overhead. The front end " of this lever is attached by a rod to the shuttle box frame, and " at the backward end of the lever is hung a counterweight. " When the loom is put in motion the disc wheel acts upon an " *antrifriction roller* carried by the overhanging curved lever, so

" that this lever rises and falls in accordance with the projections " or depressions formed on the periphery of the disc wheel. In " this way the shuttle boxes are raised and depressed in regular " succession, and the different colored wefts are thrown in according to the predetermined arrangement, the pattern being meanwhile formed by the jacquard mechanism.

" A corresponding arrangement of mechanism is fitted on the " opposite side of the loom, so that both series of shuttle boxes " move exactly in accordance with each other. The loom is also " provided with an arrangement for producing varied weaving " effects in the ground of the fabric, as for example, striped " shadings or other gradations of tints, which are produced by " repeating the shots of weft from one shuttle a given number of " times."

" The loom is also provided with a brake movement so as to " stop it instantaneously, and at the same time prevent any injury " to the yarns as well as the necessity of turning back the jacquard barrel."

[Printed, 1*s.* Drawing.]

A.D. 1861, August 21.—N° 2090.

JERVIS, Abijah.—(*Provisional protection only.*)—" Improved " machinery for the manufacture of pleated, ribbed, and looped " fabrics." " The warp is divided so as to form two distinct and " separate sheds, which may be called the upper and lower sheds, " which for pleated or ribbed fabrics are capable of being woven " into distinct cloths, but are connected together at certain points, " and in such a manner as to produce the desired ribbed or fluted " appearance." " If a looped fabric is required, no weaving is to " take place in the upper shed, and when the fabric is drawn back " and the upper warp threads are tied down to the fabric, a looped " surface will be produced."

[Printed, 4*d.* No Drawings.]

A.D. 1861, August 23.—N° 2110. (* *)

BROOMAN, Richard Archibald.—(*A communication from Barthélemy Picard.*)—(*Provisional protection only.*)—" An improved method of treating the hop plant to obtain a material " *resembling* wool."

The hop plants " are dried, put in trusses, and laid in sheds or " barns which must be dry and well ventilated. The plants are " then sorted (for the branches and different parts produce " different qualities of wool), and are passed through a crushing " machine to break them up, and to crush the knots, which are " somewhat harder than the stalks, and contain a resinous gum " more tenacious than that in the intermediate parts. The crushed " plants are next submitted to the action of stamps or hammers, " which beat out the resinous or gummy matter.

" The vegetable wool, with the waste still adhering to it, is " submitted to the action of beaters, which free it from all foreign " matters, and prepare it to be combed and carded previous to " being spun or otherwise used in the arts and manufactures; " or it may be used without being combed or carded.

" Among other uses, it forms a valuable material for the manu- " facture of pulp for paper and other purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1861, August 26.—N° 2126.

TOLHAUSEN, **Frederick**.—(*A communication from Antoine Denis and Adolphe Mottet.*)—" This invention relates to the manu- " facture of a kind of imitation fur resembling to all intents and " purposes that called Astrakan. This imitation fur is produced " either on the jacquard or on the common loom in the following " manner:—The textile matter intended for the weft, which is " composed of several ends, is first sized or dressed in a gela- " tinous solution, then wound on tubular cops or spools, which " are exposed to a heat of about 150 degrees Fahrenheit, by which " the fibres are made to curl. By using this weft with the proper " jacquard combination, a piled or terry fabric is obtained, the " weft forming the raised pile, which is then cut in the usual " way.

" The pile or terry may also be obtained by means of the weft " with what is termed a satin or satinade shed. The process is " similar to that used for weaving velvet, and in order to cause " the weft to curl, the wires or knives are heated to a suitable " degree, and are provided with a groove for guiding the knives " whilst cutting the pile. The pile may also be cut at the under " side of the fabric."

[*Printed, 4d. No Drawings.*]

A.D. 1861, August 27.—N° 2138.

BROOMAN, Richard Archibald.—(*A communication from Julien Paty.*)—(*Provisional protection only.*)—" Improvements in " the construction of temples or stretching rollers for looms." " The main feature of this invention consists in effecting by one " and the same temple or roller, carrying points or needles at or " near each end and extending across the loom, the regular and " equal tension on the two selvages of the fabric under manufacture. The rotation of the temple roller is produced by the " onward movement of the fabric, the selvages of which are " seized by the points or needles, which are arranged spirally, and " inclined outwards from the centre of the roller. A box for " holding the temple or roller extends across the loom, and is " furnished with bearings for it to revolve in. The box is held to " the loom by springs secured to a cross bar, and the springs are " slotted to enable the position of the temple to be adjusted. " The outer ends of the temples are composed of segments, " made by preference of copper, tin, or other soft metal, and " held on the roller by rings, the needles or points pass through " the segments."

[Printed, 4*d*. No Drawings.]

A.D. 1861, August 30.—N° 2166.

BISHOP, James.—" Improvements in the manufacture or " weaving of velvet or pile fabrics made entirely or partially of " silk, and in looms used for that purpose." The patentee says: —" Instead of having in the loom, as in the old plan, one beam " or roller for the top warp, and two shafts or lambs rising both " at the same time, and one bottom beam or roller and warp, and " four shafts or lambs, which alternately rise and fall two at the " same time, and three shutes or lines between every wire, I " employ, according to my invention, several beams or rollers for " the said top warp, and several top warps, which should contain, " however, no more material than the one top warp on the old " plan; the material being equally divided out to each beam or " roller. I employ also two shafts or lambs, and rise one shaft " or lamb at a time, also one bottom roller and warp, and two " shafts or lambs, which should contain no more than half the " quantity of material upon the old plan of rising and falling " *alternately*; and I rise one bottom warp shaft with one top

" warp shaft; also, I employ two shutes or lines between every " wire. By these arrangements I am enabled to save both labor " and material, and to use ' dressed glazed ' cotton for the back, " which back also may be introduced for velvets, even when not " woven in manner above described."

[Printed, 10*d*. Drawing.]

A.D. 1861, September 5.—N° 2210.

HEYWORTH, Daniel, and HEYWORTH, John.—(*Provisional protection only.*)—" Certain improvements in looms for " weaving." The inventors say:—" This invention consists, " firstly, in an arrangement of apparatus for preventing the " shuttle from passing out of its true course, or what is generally " termed ' flying out,' across the front of the handrail of the " loom, by which the top of the reed is supported; we carry a " piece of metal or other suitable material, forming a bar or rod, " supported at or near each end by bearings on brackets attached " to the lathe or slay-sword, this bar or rod is suitably cranked at " each end, so that by connection with some convenient part or " parts of the loom, the desired motion is obtained; when the " loom is in motion, the bar or rod is elevated to such a position " as to prevent the shuttle from ' flying out.' "

" Second, the swell in the shuttle box is of a peculiar form, " and fixed in its place by means of a leather hinge. Behind the " swell are projections, so arranged as to form bearings for a " small pulley or stud, over which is passed a band or strap, " which passing through opposite ends of the back of the shuttle " box, is adjusted on the picker spindle in such manner that on " the shuttle being driven into the shuttle box the strap is " tightened, and pressing against the back of the swell prevents " the shuttle from rebounding. In order that the shuttle may " freely enter and leave the shuttle box without being bound by " the action of the finger on the stop rod pressing against " the swell, we have fixed on the crank arm or loom side a " bracket supporting a short lever working on a stud, and held " in position by means of a spring; on the end of the lever is an " irregular form fixed on its side, round which moves a pulley " fixed at the end of another lever supported by the slay swords, " which latter lever being connected by a spring with a projecting hook *on the stop* rod during the motion of the loom, the

" swell is relieved from all pressure by the finger of the stop rod. " This we call 'the improved shuttle check.'

" Third, the rib or plate of wood or iron forming the front of " the shuttle box at the end nearest to the reed space, is of such " a curved form as to guide the shuttle into the box should it " slightly deviate from its true course when the loom is in motion. " This we call 'the shuttle guide.'

" Fourth, immediately behind the breast beam we have fixed a " rod or spring, extending the full width of the reed space, and " so arranged as to press against the under side of the cloth, thus " slightly raising the same (but more especially in the centre), by " this means we obtain a greater degree of body on the face of " the cloth. This we call 'the cloth improver.'

" Fifth, on the wheel working in the pinion on the crank shaft " a stud is fixed, which at each revolution of the wheel acts upon " a lever working upon a stud attached to the loom side, con" nected to one end of which lever is fixed a clip, through which " is passed an endless band or strap perforated with a number of " holes, and passing over a pulley, having a number of pegs on " its rim corresponding with the holes in the band or strap, and " at some convenient distance immediately below the centre of " the pegged pulley working on a stud, and coupled with the " pinion; placed on the end of the roller, termed the cloth " beam, is fixed a small pulley round which the band or strap " moves, and which can be raised or lowered in order to slacken " or tighten the band or strap as may be desirable on the lever " being depressed by contact with the stud on the pinion wheel. " The clip tightly holding the band or strap, causes the wheel or " pulley on the cloth beam to move, and there being a slot in " the pinion wheel through which the stud is passed, the required " degree of motion is easily obtained. This we call 'the " 'improved taking-up motion.'

" Sixth, fixed to the side of the loom we have a bracket so " arranged as to form a socket, in which the cranked end of a " lever, which having a projecting rib pressing against the warp, " passes alongside or under the warp beam. To the other end of " the lever are connected chains, ropes, or straps, passing over " pullies to the centre of back of warp beam, or immediately " underneath and attached to weighted pullies working upon " the levers for weighting the beam; as the warp passes off the " beam the weights gradually slide down the levers, and con-

“ sequently create less strain upon the warp, more or less strain
“ can be obtained by placing lighter or heavier weights on the
“ pullies on the levers as may be desirable. This we call ‘ the
“ ‘ letting-off motion, or beam weight regulator.’

“ Seventh, on the jack wires, connected to the headles, we have
“ on one side a plate, which having a half-round bottom, rests
“ upon the treadle; in the centre of the plate is a hole, and passing
“ through which a bolt, we are enabled to screw the same
“ tightly to the jack wires, which causes the same to work much
“ better, and prevents the bottom of the healds from coming in
“ contact and damaging each other. This we call ‘ the improved
“ ‘ treadle jack.’

“ Eighth, fixed at the bottom of the loom side we have a
“ spring connected with the setting-on rod, the upper portion of
“ the spring is bent at right angles, and so arranged as to prevent
“ the stop rod from rising on the loom being stopped. This we
“ call ‘ the stop rod catch.’ ”

[Printed, 4*d*. No Drawings.]

A.D. 1861, September 6.—N° 2223.

MENNONS, Marc Antoine François.—(*A communication from Benoit Durand and Claude Crozet*)—“ Improvements in ribbon
“ bon looms.” The improvements consist in “ the application
“ to jacquard, bar, and other ribbon looms, of double sets of
“ reeds, healds, and rollers, so constructed and arranged as to
“ permit the simultaneous manufacture, under the eye of the
“ weaver, of double superposed pieces of the tissue.”

[Printed, 10*d*. Drawings.]

A.D. 1861, September 6.—N° 2231.

BROWN, John.—“ Certain improvements in power looms for
“ weaving.” This invention relates, “ first, to the ‘ check strap ’
“ of that portion of the loom known as the ‘ picking motion.’ ”
“ The improvement consists in the novel employment and use of
“ a suitably formed strip of india-rubber or other elastic medium
“ at one end of the ‘ check strap,’ and so arranged that when
“ the ‘ picker ’ comes into sudden contact with the ‘ strap,’ the
“ elasticity of the india-rubber diminishes the force of the picker
“ upon the strap, and prevents injury to the ‘ picker,’ which
“ *would otherwise occur.*

"The second part of the invention relates to the heddles or "harness of looms, and consists in furnishing or covering the "surface of the rods between which the 'healds' are distended "with india-rubber, so that as the healds rise and fall during "weaving, the strain thereof may be diminished or equalized by "the interposition of the elastic substance, thereby rendering the "healds more durable."

[Printed, 6*d*. Drawing.]

A.D. 1861, September 7.—N° 2237.

AINSWORTH, William, HEAP, Ellis, FIELDING, William, and OPENSHAW, Eli.—"Certain improvements in "power looms for weaving."

The first part of this invention relates to a method of governing the rise and fall of shuttle boxes. Projections on a pattern chain act upon levers so as to cause an elbow at the lower end of one of the levers to be forced beneath a step in the head of a vertical rod, which has a reciprocating motion imparted to it by a lever and tappet. When the motion of the vertical rod is stopped by the elbow holding it up, a double pawl takes into a step attached to a chain which is connected to the shuttle box, the double pawl is attached to a slotted bar actuated by a lever and tappet.

The second part of the invention relates to a method of reversing the pattern chain and its drum. The ratchet of the pattern chain drum is actuated by two pawls, which are thrown in and out of action by a shield connected to the pattern chain.

The third part of the invention relates to an arrangement for varying the number of picks by means of a number of adjustable studs upon a disc, which studs through levers regulate the taking up motion.

[Printed, 1*s*. Drawings.]

A.D. 1861, September 7.—N° 2242.

REDGATE, Herbert.—(*Provisional protection only.*)—"Improvements in machinery for the manufacture of skirts usually "called crinoline skirts." This "invention consists, in the first "place, in having steel or other bands, cords, or wires at certain "distances inserted in the skirts, the said bands, cords, or wire "being covered with cotton, silk, or other substances, at the same "time as the bands, cords, or wires are inserted and secured in "the substance of the fabric made on the machines."

The inventor describes various methods of carrying out the invention on bobbin net machines, warp machines, and stocking looms, but he says,—

"Lastly, my invention is also applicable to cotton, silk, or other " looms used for weaving."

[Printed, 4*d*. No Drawings.]

A.D. 1861, September 13.—N° 2275.

DUBRULE, Paul.—" Improvements in apparatus for manu-" facturing figured or ornamented stuffs with treadle power " looms." " The apparatus is composed of a frame carrying a " drum, on which hangs an endless combined iron chain formed " with links of a peculiar shape; this chain is composed of as " many rows of links as there are treadles in the loom, each " treadle being actuated by a lever provided with a lift, acted " upon by the links of a same row of the chain, and only by " those of said links which are turned in the right way to catch " them. Motion is communicated to the drum carrying the chain " by the movement of the loom itself, any suitable mechanical " contrivance being used."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1861, September 14.—N° 2285.

DIXON, George,— " Improvements in the manufacture of " upholsterers' trimmings." The " improvements consist in " manufacturing upholsterers' trimmings from 'ruche,' for which " purpose silk, worsted, mohair, thread, cotton, or other material " is manufactured into a 'web,' in one or more 'bodies,' by hand " or power loom, with a warp, consisting of silk, worsted, mohair, " thread, cotton, or other material, introducing in the said warp " one or more ends of brass or other wire. Each of the said " 'bodies,' when cut through, form a 'ruche,' which is spun or " twisted upon a gut of either silk, worsted, mohair, thread, " cotton, or other elastic material, so as to form a cord. The " said cord is woven in a hand or power loom, in a warp of silk, " worsted, mohair, thread, cotton, or other material, so as to " form a bullion fringe, which is placed in a steam chest and " there subjected to the action of steam, causing it to expand " and possess a richer appearance than it had before. The said " 'ruche,' spun upon a 'gut' and treated as described, may also

" be used for cords, curtain cords, curtain holders, curtain loops, " bell ropes, tassels, and other articles of upholsterers' trim- " mings."

[Printed, 6*d.* Drawing.]

A.D. 1861, September 23.—N° 2372.

KENYON, JABEZ.—(*Provisional protection only.*)—" Improve- " ments in the treatment of yarns or warps previous to their " being sized." " This invention consists in causing the yarns " or warps to pass through a trough or chamber containing " steam or a boiling soap water before they come in contact with " the size, which treatment opens the pores and fibres of the " material and enables more size to be absorbed and distributed " in the yarns or warps, and leaves them more pliable or elastic " for the weaver."

[Printed, 4*d.* No Drawings.]

A.D. 1861, October 2.—N° 2458.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Edme Germain Bossuat.*)—" Improvements in the manufacture of " figured colored fabrics, and in machinery employed therein." " The first part of this invention consists of improvements in " the dipping boxes (boites plongeantes), whereby India shawls " and similar articles can be made much more expeditiously and " economically than heretofore. By this improved process the " different threads, instead of passing above and below across " the whole shawl, are used only where the figure appears."

" The dipping box " " has already been employed in the manu- " facture of embroidery, to carry the weft over a certain distance " of the fabric, but in this invention this box is applied to effect " another purpose, namely, to work or unite together the warp " threads and embroidering threads by crossing the threads or " raised threads (armures), according to the different intercross- " ings of the threads used in different tissues, such as serges, " satins, cloth, and the like. Thus a new result is obtained, " namely, any kind of raised work may be produced upon the " figures, and especially the twill upon woven shawls."

The second part of this invention consists in " the employ- " ment, in the manufacture of Indian fabrics, of two boxes, with " the teeth of different dimensions, the lower box carrying the

" bottom wefts and twine, while the upper box carries the colors " for embroidering."

"The third part of this invention relates to the construction " of an apparatus which the inventor calls a preparer (prépara- " teur). This apparatus is for the purpose of facilitating the entering of the raised threads into the groove in the boxes. The apparatus consists of two strips of wood, each carrying a row of points capable of sliding in opposite directions. These strips are connected to another strip of wood attached to the batten; this last strip is for bringing the parts to that point that the threads to be raised are between two of the points, and when the threads are raised, by the motion of the apparatus, the two strips are moved in reverse directions, forming the raised threads into a " closely packed group which easily enters the groove in the " box."

"There is another improvement, its object being to increase " the facility with which the box before mentioned is worked." Each end of the box is held by a cord of caoutchouc. "The " tension of this cord, combined with the weight of the box " (when at rest), keeps it just above the warp." "The caout- " chouc allows the box to be dipped by a slight pressure, and " returns automatically to its first position.'

"Another improvement consists in the employment of a regu- " lator to facilitate the labor of the attendant when he passes a " cylinder from one of the teeth in the box to another, so that " the embroidery thread may leave a track on the fabric."

"The last improvement consists in placing the different cards " which form the design in a new manner, so that the threads " may not become entangled. Each of the colors has consecu- " tively its own to-and-fro motion, from which it follows that all " the colors are always in their proper position, and they never " mix or cross one another."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1861, October 4.—N° 2481. (* *)

ELSTOB, CHARLES MILLS.—(*Provisional protection only.*)— " Improvements in buckets and portable water cisterns."

Buckets and cisterns are woven circular or round in place of being made of fabrics woven in the usual manner. The material employed, by preference, is yarn similar to what is now used in the *manufacture of woven* hose pipes. The cisterns and buckets are dressed or lined "with a preparation of india-rubber, tar, or "other ingredients for preserving the fabric, or for rendering it "waterproof. The bottom of a bucket or cistern is made either "of strong canvas, wood, tin, galvanized iron, leather, or other "suitable material sewn, rivetted, or otherwise fixed to the circular weaving."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 4.—N° 2483.

PRATT, John.—(*Provisional protection only.*)—This "invention "of improvements in shuttles for weaving ribbons consists in "forming the shuttle for and disposing the bobbin or spool "containing the weft thread therein in a position behind the "grooves instead of in front, as heretofore," by which means the inventor says he is "enabled to introduce sufficient thread to weave "half a piece of ribbon and about twelve times the quantity now "introduced."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 10.—N° 2530.

MOULD, William, HALL, John, COOK, Samuel, and HACKING, William Henry.—"This invention consists in "the employment of machinery with various self-acting movements, for the purpose of making perfect or complete healds "or harness of any depth or fineness without the aid of hand "labour."

The patentees claim, "first, the employment of cylinders or "rollers mounted with snugs, notches, tappets, or raised sections "for giving the required mechanical movements, or shafts having "cranks, tappets, arms, or levers fixed to them for the same "purpose.

"Secondly, the employment of shuttles and shuttle boxes "attached to an endless revolving chain or band.

"Thirdly, the employment of top and bottom surface plates for "acting upon the flanges or heads of the bobbins for the purpose "of taking up the loose yarn and maintaining its proper "tension.

"Fourthly, the employment of one or more needles with hooks "*or spurs for seizing* the yarn and forming the shed for the "*shuttles to pass* through.

" Fifthly, the apparatus for marking or tokening.

" And, lastly, the general arrangement of the self-acting mecha-
" nism for manufacturing healds."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1861, October 12.—N° 2549.

RAMSDEN, John Carter. — These improvements relate to healds or heddles. The patentee says :—" My improvements con-
" sist in having three continuous threads, one of which, to form
" the loop, is lapped by suitable mechanism round the other two,
" then drawn up to the rigband or selvage of the heald, and there
" fastened; hence I obtain a perfect loop without knots. The
" mechanism by which I propose to accomplish this is as fol-
" lows :—On the face of a common mail heald machine, some-
" where about where the mail trap is now placed, I fix a hollow
" stud; this stud bears a flyer containing a bobbin, which is
" caused to revolve at stated times by suitable mechanism;
" through this hollow stud I pass a rod, which may be of dif-
" ferent thickness, according to the size of loop required; like-
" wise through this hollow stud I pass two threads, one on each
" side of the rod, which come from bobbins placed on spindles at
" some convenient part of the machine; when, therefore, the
" flyer on the stud is caused to revolve the thread on the bobbin
" fixed thereon will lap round the two threads and the rod,
" which pass through the stud, and when this is done the threads
" are drawn up to their respective rigbands or selvages by a
" system of hooks similar in construction to those now in common
" use in the mail heald machines, and so on until the heald or
" heddle is completed."

[Printed, 2*s*. 10*d*. Drawings.]

A.D. 1861, October 12.—N° 2550. (* *)

PIRSON, Victor, and DE KEYSER, Augustus.—(*Provisional protection only.*)—" The application of a new material in the manu-
" facture of paper, cardboard, and yarns."

The only part of the Specification relating to the subject of this work is as follows :—" In the manufacture of yarn or thread the
" lucern root is subjected to the same preparatory operations as
" hemp or flax are now used."

[Printed, 4d. No Drawings.]

A.D. 1861, October 15.—Nº 2566.

BLAND, William.—(*Provisional protection only.*)—These improvements relate to pickers. The inventor says:—"I make "the pickers of pieces of buffalo or bullock hide, a material "commonly called 'sizing' leather, caoutchouc, or any other "suitable material, which has hitherto been used for the manufacture of pickers; but to strengthen the striking part I lap the "outer fold of the material composing the picker over the side of "the picker to the back end of the same, and secure it there with "one or more staples and rivets, thus changing the **T** shape of "the picker into an ˥ or any other suitable shape, and turning "in the outer fold the material edgewise to the work or parallel "to the spindle on which the picker slides. The picking band "or strap being fastened as usual I provide the necessary space "for it to pass the outer fold, where it laps over the side."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 17.—Nº 2585. (* *)

SMITH, Robert, and ROWCLIFFE, John Barnouin.—"Improvements in apparatus for winding yarn or threads on the "pin bobbins or spools used in small ware and ribbon looms."

This invention consists in "so constructing pin winding "machines that any required number of threads may be wound "together and with an even tension on each bobbin pin, also "when either or any of the pin bobbins is full, that the same "will be disconnected from the driving power, and cease to take "up any more thread or threads without affecting the remaining "pin bobbins that are not sufficiently filled. In connection with "each pin bobbin is a stopping apparatus which disconnects the "pin bobbin with its driving power, when either or any of the "threads thereon break or run out, thus preventing its further "action till the breakage is made good, or more thread supplied. "The length of traverse given to the guides which direct the "threads on to the pin bobbins is gradually shortened as the "pin bobbin fills, that the ends of the same may be tapered, "which not only prevents the threads overlapping," but also enables the patentees to dispense with flanges to the pin bobbins.

In the arrangement described, a number of threads proceed from bobbins through guide eyes at the ends of detective levers, and thence through two other eyes to the pin bobbin on which they are wound, there being between the latter eyes an upright roller round which the threads are coiled; these eyes and the roller being mounted upon a guide which is traversed to and fro so as to distribute the material evenly upon the pin bobbin, by means of a mangle wheel, rack and quadrant, and suitable apparatus connected therewith. Certain somewhat complex arrangements of levers, catches, and other appendages are employed to stop the progress of the work on the breakage of any of the material, or when the pin bobbin is sufficiently full, and also for shortening the traverse of the thread guide, and so causing the material to be wound upon the pin bobbin in a conical form at each end. These arrangements will only be understood with the aid of the drawings annexed to the Specification. The pin bobbin itself is mounted on a spindle in a "swing frame," which being moved upon its fulcrum, either by hand or by the machinery, the wheels which drive the pin bobbin may be placed either in or out of geer, so as to cause motion of the bobbin or otherwise, as may be required.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1861, October 18.—N° 2602.

TAYLOR, Benjamin.—(*Provisional protection only.*)—Improvements in brace webs. The inventor says:—"My invention refers "to the kind of brace webs known as india-rubber webs, and "which have hitherto been made of cotton or silk webbing and "india-rubber. I propose to employ woollen or worsted webbing "with india-rubber, as I can obtain far more brilliant dyes in "wool than in cotton, and at much less cost than by using silk. "I can employ worsted warp and cotton weft, the weft not "being visible, or I can use worsted face with cotton weft and "cotton back."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 21.—N° 2627.

GEDGE, William Edward. — (*A communication from Jean Pierre Manichon, junior.*)—(*Provisional protection only.*)—"Improvements in the manufacture of flannel." "In the manufacture of twilled flannels it is proposed to take threads of "combed wool (Australian, French, or other), warping, dressing, "and weaving by the usual means, using a woof of combed wool "*of a number regulated* by the quality of flannel to be made.

" The web will be burled and picked by means of arenaceous " cloths and then scoured. When it is desired to render the " fabric less shrinkable it will be slightly fulled, then bleached " with sulphur, and folded for sale.

" In manufacturing another description of flannel, known as " 'Rolivard's,' it is proposed to take threads of combed wool of " a thickness suited to the thickness to be given to the fabric, " warping, dressing, and weaving by the usual means, using a " woof of combed wool, and burling and picking if necessary, " but if the knots are neither strong or numerous it will suffice " to raise or nap the stuff after wetting, that is to say, after a " slight fulling, then bleach, sulphur, relay the pile or nap, and " fold."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 23.—N° 2651.

KIRKWOOD, James.—(*Provisional protection only*.)—"This " invention comprises various improvements in looms for weaving, " designed principally to facilitate and cheapen the production " of figured fabrics of the 'Paisley shawl' class, but also more or " less applicable to looms for weaving other fabrics.

"The improvements are contrived to permit of the application " of steam or similar motive power, and in one modification of " loom embodying them are combined with jacquard pattern " mechanism of the single-lift class. This jacquard mechanism " acts on the warps by means of the ordinary harness mounting " and a set of heddles; it is also made to both regulate and effect " the changes of the shifting shuttle boxes, and at the same time " to both regulate and effect the picking movements. The " shuttle boxes may be arranged for various numbers of shuttles, " and for shifting to the extent of one or more boxes at a time. " When arranged for shifting one box at a time, each shifting " box has fixed to it a kind of ratchet rack, with the inclined " teeth pitched at the distance of two boxes in depth, and with " this rack there are arranged to gear two spring catches centred " on the lathe frame in such positions that where one catch is in " gear with a rack tooth, the other catch is half way between two " teeth. The catches are connected to seperate tails of the jac- " quard apparatus, and when a downward shift is required the " catch in gear is drawn back by the corresponding jacquard tail,

" and the shifting box falls by its weight, or is otherwise shifted " into gear with the other catch. The box is lifted, when " required, by means of a lever acted upon by another jacquard " tail, and in rising the rack forces back one catch and allows the " other to fall into gear. To provide for shifting two or more " boxes at a time three or more catches are required, and the rack " must be differently pitched to correspond." "The picking " sticks or levers are actuated by springs, the strain on which is " applied by the jacquard apparatus." "A shuttle guard is sus- " pended in front of the reed, consisting of a bar fitted with points " projecting downwards, and which when the shuttle is obstructed " in going across prevents it from flying out of the loom. This " guard may be made to rise on the beat-up taking place, so as " to leave the shuttle at the fell. The loom is by preference " driven at a variable speed by means of eccentric or elliptic " wheels, in such a way as to give comparatively more time for " throwing the shuttle."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 30.—N° 2717.

PRIESTLEY, Richard Rowntree. — (*Provisional protection only.*) — "Improvements in the manufacture of woven " fabrics." The inventor says :—" In the manufacture of certain " descriptions of goods applicable to ladies' and gentlemen's " outer clothing, including shawls and similar articles, I use a " cotton or silk warp in its natural color, or bleached or dyed, " and the weft of the goods is worsted or worsted and cotton yarn " carded or combed, and either bleached, dyed, or in its natural " color, this being sprinkled or mixed with one or more colors of " dyed or bleached cotton, silk, worsted, or wool. Or I use a " cotton weft dyed, bleached, or in its natural color, and sprinkled " or mixed with one or more colors of dyed or bleached cotton, " silk, worsted, or wool.

[Printed, 4*d*. No Drawings.]

A.D. 1861, November 4.—N° 2767.

STEWART, John. — (*A communication from Louis Joseph Fillion.*)—(*Provisional protection only.*)—" This invention relates " to a system or mode of renewing the cards used in jacquard " weaving mechanism, so as to avoid waste of material.

"Under one modification two cards representing different " colours are taken, and the layers of paper which form the card " are slightly seperated at the corner to a small extent by means " of a knife or other suitable instrument. The layers of paper are " then completely seperated, and the layer or half of one card is " glued or otherwise cemented to the half of the other card. The " two remaining halves of the cards are in like manner glued or " cemented together, so that the four parts again form two perfect " cards as the perforations in each half are covered by the solid " parts of the other half, and the parts when joined in this manner " are again ready for being punched."

"Another mode of making these renewed cards where a greater " degree of stiffness is required, is to combine three layers of paper " together by cementing one layer of new card paper to the surface " of two old or used cards, and so forming two new cards, the " new ones being re-punched in the ordinary manner.

"Another mode or process consists in cementing one layer of " new card paper on to each half of the old or used cards, seperated as before described, so as to make the renewed cards of the " original weight.

"Under another modification, which avoids the necessity of " unlacing the cards, the old or used cards have cemented to their " faces two strips of card paper, each piece extending from the end " or guide holes to the central holes, where the cards are united or " laced together."

[Printed, 4*d*. No Drawings.]

A.D. 1861, November 7.—N° 2792.

WALMSLEY, JOHN.—"This invention consists in an improved " arrangement of the working parts of the loom, so as to be able " to weave two pieces of fabric at the same time in such a manner " that each piece will have a proper selvage and may be woven as " wide as the reed space will admit." The patentee employs " two warp beams, two cloth beams, two taking-up motions, two " shuttles, one or two sets of healds, two temples, and two weft " detectors. The pieces of fabric are one above the other, the two " warp threads passing through the same reed, and the other " ordinary parts of the loom are arranged to suit the require- " *ments.*"

[Printed, 10d. Drawing.]

A.D. 1861, November 12.—N° 2842. (* *)

TONGUE, William.—" Improvements in the manufacture of " printed yarns, and in the application of certain fibrous materials " to the manufacture of certain descriptions of yarns and " threads."

The first part of this invention " consists in printing in one or " more colors slivers, slubbings, or rovings of fibrous materials, " such printed slivers, slubbings, or rovings being afterwards " drawn out and spun into yarns by ordinary drawing and spinning machinery;" the effect of this part of the invention being to produce a "marled or mottled yarn of an improved character."

The second part of the invention consists in the application to the manufacture of "mixed yarns, colored, or 'mottled' yarns, " and mixed, twisted, or doubled yarns," of the fibres taken from the stems or shoots " of any or all (either alone or in combination " with other fibres of the following plants," viz., the " neilgherry " nettle," or "urtica;" the "marsdenia tenacissima," the fibre from which is known as "jette fibre; the " Pederia fœtida;" the Colotropis gigantea, the fibre from which is known as the " mudar " or yercum fibre;" and the Beaumontia grandiflora, a tropical plant of the order Apocynaceæ. The fibres having been removed from the stems of the plants may be treated " by any of the well-" known steeping or retting processes, with or without the aid " of chemical solutions;" but the patentee states that he prefers to treat them as described in the Specification of F. M. Jennings, A.D. 1852, No. 756, or as described in the Specification of E. Blake, A.D. 1859, No. 2036. They may then be suitably prepared for spinning by similar processes to those practised in the preparation of other fibrous materials, and may be spun either in the undyed or bleached, or dyed or printed state, and either alone or mixed, or in combination with other descriptions of material.

The third part of the invention consists in the application to the purposes of producing yarns such as mentioned above of the fibres " obtained from the pods and surrounding the seeds " of the Beaumontia grandiflora; the Colotropis gigantea; the doora " fibre, from Goozerat and other parts of India;" the Stephanotus floribunda; the "Eriodendron samauna;" the Bombax or Salmania malabaricum; and the other varieties of Bombaceæ, order Malvaceæ, " producing the material known as silk or tree cotton." The fibres may be used alone or along with other materials.

The fourth part of the invention consists in the application to the manufacture of knitting yarns, sewing threads, and what are known in the worsted trade as "Gwynappe and heald yarns," of the fibres taken from the stalks of the Bœmeria "nevo," the Bœmeria puya, and other varieties of the species Bœmeria, order Urticaceæ, known as "rhea fibre," and of the fibres of the stalks or stems of the plants mentioned with reference to the second part of the invention, either separately, combined, or along with other fibres.

The fifth part of the invention consists in the application to the manufacture of knitting, and what the patentee calls "imitation "woollen yarns," of the noil or refuse of the fibres of the plants mentioned with reference to the second and fourth parts of the invention, such noil being used either alone or along with other fibres. And also in the application to the manufacture of knitting and "imitation woollen yarns" of the fibres surrounding the seeds and contained in the pods of the "Eriodentron saumauna;" the Bombax, or Salmania malabaricum, and other varieties of the Bombaceæ, order Malvaceæ. The patentee mentions that by the term "imitation woollen yarns" is understood yarns which are "scribbled," "condensed," and "slubbed," by woollen and "shoddy" machinery.

The sixth part of the invention "consists in printing in one or "more colors yarns either single or double, when such yarns are "produced from the fibres of any or all of the plants described in "the second, third, and fourth" parts of the specification; "such "fibres being used alone or in combination with other fibres." The yarns "may be printed so that when they are arranged in a "warp they will form a pattern, as is well understood."

[Printed, 6*d*. No Drawings.]

A.D. 1861, November 13.—N° 2858.

TOWNSEND, Isaac Thomas.—(*Provisional protection only.*)—These "improvements in harness for weaving textile fabrics con-"sist in forming it of metal wire, in lieu of cotton, flax, or other "fibrous substances as heretofore; these wires are used to attach "the mails to the bars, between which they are stretched instead of "the cords usually employed. Instead of the lower bar inde-"pendent weights may be attached to each, as is sometimes "*usual.*"

[Printed, 4d. No Drawings.]

A.D. 1861, November 16.—N° 2882.

BOOTH, JOSEPH, CHAMBERS, THOMAS WILLIAM, and CHAMBERS, JAMES.—"Improvements in looms for weaving." The patentees say:—"This invention consists, first, of an im- " proved taking-up motion. We employ two levers, one of " which is propelled by motive power from the slay sword by " means of a connecting arm, which lever imparts motion to a " second lever which puts in motion two or more inclines of a " circular or straight form, which work in connection with as " many eccentrics, and instantly come to a dead-lock when the " forward motion is given, but are immediately eased on the " retrograde motion being given. The above combined give " motion to a worm working in a worm wheel on the end of the " cloth beam or roller, and so without any intervening roller, " change wheels, or other apparatus the requisite amount of " motion is given to the cloth beam. This latter motion may be " also effected by gearing. The whole of this contrivance is " regulated by a lever, one end of which presses upon the cloth " on the cloth roller, and as the cloth beam increases in diameter " the other end, which is attached to a slide, gradually lengthens " the first lever, and in the same proportion lessens the amount " of motion given to the cloth roller, so as to secure a uniformity " of motion to the cloth throughout the whole length.

" Secondly, of an improved letting-off motion. This consists " in a most simple contrivance, which we call a uniaxular beam " and rail, because it consists of a beam and rail working upon " the same axis. The rail is bent at each end at right angles, " and is furnished with a pivot at each extremity, which pivots " work in recesses on the loom sides. In the bent arms near the " pivots are other recesses in which the ends of the yarn beam " rest. On one end of the yarn beam a catch wheel is fixed, and " connected with the bent arm, a catch working in the said " wheel, by means of which the beam and the rail are locked " together, and remain in that position until the catch comes in " contact with a projection, by means of which the catch is " raised, a portion of the warp is allowed to pass under the rail, " and the catch being pressed by means of a spring prevents " more than one tooth passing the catch at a time. By a " constant repetition of this motion the warp is supplied as it is " required.

"Thirdly, of an improved combination of fast and loose reed. "This consists in a frame for the purpose of holding the reed "seperate from the handrail and the slay bottom, and works "from a centre attached to the slay sword on each side. A "bracket is attached to this frame on each side, which passes "under the slay bottom, and terminates with a downward hook. "A prolongation of the crank arm passes through a slot in the "slay sword, and terminates with a bend or elbow which at the "time of beating up forms a straight line from the centre of the "crank shaft to the bend or elbow, and passes within the hook "referred to, and makes the whole so solid that the possibility of "giving way will depend upon the strength of the fittings. Up "to an inch from contact with the cloth the hook and bend are "free from each other, and consequently the reed is perfectly at "liberty, except being held by a spring which requires a very "slight resistance to overcome, and consequently if the shuttle is "by any means prevented from running its race and retained in "the shed the hook and bend will be prevented from coming in "contact by the reed falling back. This again will bring a small "arm or finger in connection with the break, which will push "the strap upon the loose pulley and bring the loom to a dead "stand.

"Fourthly, of an improved picking motion. This consists of "an arm secured to the front part of the framework of the loom "at each side, which arm projects towards the back part of the "loom, secured to this arm, and near to the end of it is a strap "connected with a cam or circular plate which is fixed upon the "picking stick. On the end of a shaft, extending across the "loom, and receiving motion from the crank shaft, is a picking "arm or tappet which comes in contact with the extreme end of "the arm first mentioned, and imparts motion to the picking "stick.

"And, fifthly, of an improved shedding motion. This consists "of two toothed wheels, one of which is fixed upon the shaft "extending across the loom, the other upon a stud secured to a "rail. One of these wheels being furnished with convex and "the other with concave planes causes a temporary suspension of "motion. In one of these wheels is a slot in which a stud is "fixed, and on this stud a sliding bar furnished with a rack. "This rack imparts motion to a block, which again imparts "motion to the healds. By means of the slot referred to

" the size of the shed may be increased or decreased at " pleasure.

" The above arrangement is also applicable to weaving " twills."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1861, November 22.—N° 2930.

HIRST, William.—(*Provisional protection only.*)—" Improvements in the manufacture of paste, which is also applicable for " sizing purposes."

The " improvements consist in dispensing with the use of " 'wheat flour,' and employing in lieu thereof a combination " of 'rice flour' and 'barytes,' or 'pea meal' and barytes, or " 'bean meal' and barytes will answer for the purposes of " pasting."

[Printed, 4*d.* No Drawings.]

A.D. 1861, November 22.—N° 2932.

AMBLER, William. — (*Provisional protection only.*) — " Improvements in the manufacture of loom pickers." The " improvements consist in forming them of metal adapted to receive " a padding of 'sizeing' or other suitable material, combined " sometimes with an india-rubber back for the purpose of " elasticity where they strike the end of the shuttle."

The inventor forms " the part where this elastic material to " strike the shuttle is applied as a sort of chamber, formed by a " lip or other holding means at the front or striking end, to " prevent the padding being forced through, and a screw or other " suitable means at the back to press upon the padding, and " thereby regulate the amount of elasticity to it as well to give " facility for the replacement of a fresh pad when one is " worn."

[Printed, 4*d.* No Drawings.]

A.D. 1861, November 27.—N° 2983.

LECK, William.—(*Provisional protection only.*)—" This invention relates to ornamental woven fabrics, resembling what are " known as 'crimped goods,' in which 'crimped' or full stripes, " running the long way of the cloth, are alternated with scant or " plain stripes.

"In weaving such fabrics according to the present invention "the scant or plain parts (otherwise termed the 'band' part, "when the fabric is to be subsequently made into frillings) are "made single-fold instead of two-fold, as heretofore. The warps "for the band parts are drawn off a beam seperate and distinct "from the beam supplying the warps for the crimped or full "parts, and the two sets of warps are differently paced, and are "actuated by different heddle leaves, as is well understood. But "to make the band single-fold and scant or short as compared "with the crimped parts, the warps composing it are shed so "that two or more weft threads are laid in each shed, each "shed being kept open or being repeated for two or more shots, "whilst the shed of the warps for the crimped parts is changed "at each shot."

[Printed, 4*d*. No Drawings.]

A.D. 1861, December 4.—Nº 3035.

GEDGE, WILLIAM EDWARD.—(*A communication from Felix Loignon and Victor Casse.*)—"The present invention relates to "the manufacture of canvas or other description of tissue suit- "able for the manufacture therefrom of horses' nose bags or other "similar articles presenting one or more open work or trellis "parts, obtained by the insertion in the tissue by and during the "weaving of the same of a suitable number of strings, twine, or "other thread of a much coarser description than those of the "remainder back or ground of the tissue, the said strings, twine, "or coarse threads forming by their mutual interweaving a coarse "open worked part or trellis."

[Printed, 6*d*. Drawing.]

A.D. 1861, December 4.—Nº 3036.

HEMINGWAY, JAMES.—"These improvements consist, firstly, "in the combination or admixture of the feathers or down (or "both) of birds, either in natural or artificial colors, with or in "textile fabrics of silk, cotton, wool, flax, or other fibrous "material or materials, such feathers or down being subsequently "raised on the surface so as to form a pile or nap.

"The improvements consist, secondly, in a similar combination "or admixture of the short hair or fur of animals (removed from "the skin) with the aforesaid textile fabrics, such hair or fur being too short in the fibre to be spun or woven by itself. The hair or fur thus introduced is intended to be subsequently raised to the surface to form a pile or nap on the fabric as before.

"The improvements consist, thirdly, in the ornamentation of the aforesaid textile fabrics, by the combination or admixture therewith in figures or ornamental designs (on a plain ground) of such feathers, down, hair, or fur, either separately or combined. The aforesaid combinations or admixtures may be effected either by the introduction of the feathers, down, fur, or hair among the other fibrous material during the preparation of the same for spinning, or by the introduction of the same into the shed during the process of weaving.

"The improvements consist, fourthly, in the application or insertion of the whole or parts of the skins of animals, birds, or fishes (either in their natural colors or artificially colored) to or in the aforesaid textile fabrics, for the purposes of ornamentation, such skins being placed between the shed of the warps which are to be so interlaced above and below the said skins as to confine the same in their desired positions, the threads which pass above the skins being so arranged as not to hide or impair the beauty of the object inserted. The skins may (if requisite) be further secured by stitching at intervals, either by machine or by hand.

"And, fifthly, the improvements consist in the insertion or introduction into such fabrics in the manner lastly above described, of artificial imitations of birds, beasts, fishes, insects, reptiles, or other living animals, or of shells, trees, plants, and flowers, or other similar devices for the purposes of ornamentation."

[Printed, 4*d*. No Drawings.]

A.D. 1861, December 4.—N° 3046. (* *)

HARTOG, CHARLES SAMUEL HENRY.—"Improvements in the preparation and treatment of vegetable fibres, the better to adapt them for combining, working up, and dyeing with different fibres, such as silk, wool, cotton, and others, and in apparatus used in such treatment or preparation."

The invention consists, 1, "in producing and preparing vegetable fibres of a silky and woolly nature suitable for admixture,

" spinning, and working up with animal wool and hair, shoddy, " and mungo wools, silk, cotton, or other different fibres, which I " obtain from the plants known as the rheea ranee, bon sunn, jute, " Indian flax and hemp, aloes, plantain, pine apple, Indian and " other nettles, leaves of grasses and trees, and other vegetable pro- " ducts;" 2, " in the employment of these products in spinning " and manufacturing all kinds of yarns and woven fabrics, or " any other applications in which animal wool, hair, shoddy, and " mungo wools, silk, or cotton, are employed;" 3, " in the use " of such chemical agents, and such mechanical apparatus as " will entirely remove all resinous, ligneous, and other matters " from such vegetable fibres, so as to cleanse and bleach them, " and prepare them to take perfectly dyes of all colours, and " with any admixtures."

The fibres are prepared (after undergoing the processes of retting, scutching, hackling, &c.) by boiling, cooling, and washing them, and afterwards exposing them in a boiling state to the action of a lye of salts or soda, or other analogous chemicals of the strength of about 2½° to 4° Beaumé's lye meter. They are then washed and put into a lukewarm soap bath, and after remaining for 20 or 30 minutes in such bath, washed, rinsed, and dried. If the fibres are to be prepared for light colours, they are then submitted to a bleaching bath (3 lbs. of chloride of lime to 150 lbs. of fibre). In order to mix the fibres with hair, wool, &c., they must be cut after the washing process into lengths the same as that of the wool, &c., "and then be operated on by the usual and appropriate " machinery employed for the production of slivers for spinning " and weaving, or for the production of any other fabric."

[Printed, 4*d*. No Drawings.]

A.D. 1861, December 11.—N° 3110.

LEEMING, John.—The patentee says:—" This invention has " for its object improvements in looms for weaving, and relates to " an improved method or means of actuating moveable shuttle " boxes, the object being to obtain much greater simplicity in " detail, and to reduce the cost of construction. For these pur- " poses I affix on the crank shaft, by preference (although a stud " *or other* fixing would answer) a casting fitting loosely thereon, " *and allowing the* said shaft to revolve without impediment; the " *said casting* is formed with a provision at one of its ends for

" the insertion and securing by a bolt or screw of a wrought iron " (or other suitable material) continuation, extending through the " frame of the going pivot, and having a hook near its extremity " and immediately over the star or pin wheel, which is a wheel " made fast to the axis of the series of shuttle chambers; the said " hook is raised out of contact with the star or pin wheel by " reason of the casting upon the crank shaft being so weighted as " to be the heavier end. On the same shaft I place another " similar casting and wrought-iron continuation, with hook im- " mediately under the said star or pin wheel. The weight in the " case of this second casting and continuation is so arranged as " to give the preponderance to the hooked end, so that when not " operated upon, the slay board carrying the series of shuttle " chambers and the star or pin wheel is free to vibrate without " the said star or pin wheel coming in contact with the hooks on " either of the continuations of the two castings upon the crank " shaft. I apply strings or other equivalents to the two castings " upon the crank shaft, and pass them partly round bowls or " pullies, and from thence to the usual or other operating motion. " The change from one shuttle to the next in either direction is " effected by the operating of either of the before-mentioned " strings or connections, which will lower or raise one of the " hooks into position to be operated upon by the star or pin " wheel coming in contact therewith when the slay board is in " the act of beating up, which will have the effect of causing the " series of shuttle chambers to turn in one direction or the other, " as desired, according as the different strings are operated."

" My invention also consists in means for imparting a variable " motion to the cloth roller in looms, according as such roller is " increased in diameter by the addition of the cloth woven, to " attain which I apply to the crank shaft (or elsewhere) a wheel " made fast thereon and geared into another wheel mounted upon " a stud made fast to the frame of the loom, and on which it may " revolve freely, carrying upon its axis two double elliptical cams " or tappets and frame, in which the said cams or tappetts work, " and similar to the cams or tappets for which Letters Patent were " granted to me, dated 5th February 1861, No. 301, and which I " then employed for actuating the lay of the loom, but which I " now use for actuating a lever mounted upon a stud made fast " to the frame of the loom, and carrying pawls or catches

" mounted upon a stud made fast thereon, and operating upon a
" catch or ratchet wheel. The upper end of such lever I form
" with a slot to allow of a horizontal bar or connection between it
" and the frame, in which the two double elliptical cams or tappets
" rotate, being raised as the diameter of the cloth roller increases,
" in order to impart to the said roller through the ordinary train
" of gearing the desired variable motion. The connection between
" the lever and frame in which the cams or tappets rotate, I cause
" to be operated by means of a scrowl or wedge-like incline, being
" operated upon by the increased diameter of the cloth roller, and
" coming in contact therewith."

" I also, according to my invention, apply the double elliptical
" cams or tappets, together with a scrowl or wedge-like incline, in
" a similar manner to the letting-off of the warp from the beam."

[Printed, 1s. 4d. Drawings.]

A.D. 1861, December 13.—N° 3122.

ASHWORTH, Richard, SHEPHERD, George, CORMACK, John, and DEARDEN, John.—(*Provisional protection only.*) —" Improvements in looms for weaving." The improvements relate to the taking-up motion; a rod or bar containing a cross slot or slide is actuated by a lever attached to the lay. A lever supported upon a pliable stem moves in the cross slot or slide, one end of which lever catches in the teeth of a disc wheel, and causes the said disc wheel to revolve. The disc wheel is connected with the cloth roller by wheelwork. " The stem before-mentioned,
" which carries the lever for moving the disk wheel, is attached
" to a rack, the said rack having motion given to it by wheel-
" work, or a worm and wheelwork connected to the other wheel-
" work before mentioned by means of a shaft or otherwise. When
" the rod containing the cross slot or slide acts upon the lever
" fixed on the stem, and thereby causes the disk wheel to revolve,
" the train of wheels attached thereto causes the rack to which
" the said stem is attached to move the lever along the cross slot
" from the centre of the disk wheel towards its circumference,
" thereby decreasing the time of revolution of the said disk wheel
" in proportion to the increasing diameter of the cloth on the
" cloth roller."

[Printed, 4d. No Drawings.]

A.D. 1861, December 16.—N° 3153. (* *)

DAVIES, George.—(*A communication from Aloïs Chevalier Auer de Welsbach.*)—" Improvements in the manufacture of textile " materials."

These improvements " consist, firstly, in the employment or use " for the manufacture of textile fabrics of certain parts of the " leaves and stalk of the plant known as Indian corn or maize;" and, " secondly, in a novel and peculiar process whereby the " fibrous portions of such plants are separated from the other " parts of the same, and reduced to a state in which they are " capable of and suitable for being prepared, spun, and woven." " The leaves which surround the grain, as well as the stalks, are " placed separately in a steam boiler, where they are exposed " during several hours to the boiling or steaming process;" sometimes, " according to the quality of the fibrous material, it is " necessary to add to the water a little lime or solution of soda."

" During the boiling process the textile matter separates itself " from the other constituent parts of the plant, and precipitates " itself by reason of its greater specific gravity to the bottom of " the boiler, whilst the lighter parts continue to remain in suspen" sion in the liquid, so that when the latter is drawn off the " textile matter alone remains at the bottom of the boiler. The " boiling being terminated, the textile material is removed from " the boiler to be washed and dried. After drying, the filaments " are heckled in a similar manner to flax or hemp, and they may " then be spun and woven in the ordinary manner."

[Printed, 4*d*. No Drawings.]

A.D. 1861, December 16.—N° 3155.

CHALMERS, David.—" This invention relates to the arrange" ment and construction of looms for weaving figured fabrics " and checks, and the first part of the improvements has reference " to the mechanical arrangements for actuating circular shuttle " boxes in the required sequential order.

" Under one modification, the circular shuttle box, which is of " the ordinary kind, is carried in a frame, the inner part of which " is bolted to the lathe, the end standard of this frame being " carried upon a laterally extending portion of the rocking shaft " of the lathe. The spindle fitted in the outer end of the shuttle " box projects out beyond the end standard, and has fast to it at

" this part a small chain wheel, over which is passed a chain.
" Each end of this short length of chain is attached to a wire,
" cord or other equivalent therefor; these cords are carried downwards,
" and passed round a grooved pulley, which runs loosely
" in the rocking shaft. The ends of the wire cords pass over
" and are attached to the segmentally-shaped extremities of a
" duplex lever, which is fast to a short horizontal shaft. The
" bearings of this shaft are carried on an open bracket frame,
" which is bolted to the end standard of the loom framing.
" This frame also carries the modified jacquard mechanism for
" effecting the change of the shuttle box. The central part of
" the shaft carrying the duplex lever is made in the form of a
" rectangular frame, so as to admit of a series of rods or needles
" passing through the open part without interfering with the
" rocking motion of the shaft. The horizontal rods are equivalent
" to the needles of an ordinary jacquard apparatus, and they
" correspond in number to the cells in the circular shuttle box.
" These needles are of a T-shaped figure, the arms extending in
" a vertical direction, and then bent at right angles, so as to come
" in contact with the rectangular part of the rocking shaft when
" pushed back. The bent ends of the T-shaped parts of the
" needles are arranged as regards length, so as to operate upon
" either the upper or the lower portion of the rectangular part of
" the rocking shaft in such manner that the duplex lever will
" bring the desired cell of the shuttle box in a line with the
" shed. Just behind the rods or needles is arranged a short
" horizontal shaft carrying a chain wheel, on which is a series of
" metal plates or cards. These cards are linked together, and
" each has a projecting part or tappet formed on the face, which
" part moves forward a rod or needle when a change in the
" pattern is required, the several cards being so arranged as to
" move the rods in the required sequence to produce the pattern.
" The mechanism herein-before described is brought into action
" at the proper moment by means of a pattern chain, which
" passes over a chain wheel arranged on the spindle of the ratchet
" wheel. A lever, which is actuated from the tappet shaft, or
" from the sword, pushes the ratchet wheel round tooth by tooth,
" so as to draw up the pattern chain one link at a time, which
" is equivalent to a double traverse of the shuttle. At each
" *change of the* shuttle box, a projecting piece or tappet is
" *inserted in the chain.* This tappet pushes back a pendant

" lever, which is connected to a catch that falls into the teeth of " a ratchet wheel on the shaft of the card barrel; this shaft also " carries a duplex pendent lever, which is connected to a rocking " lever actuated from the tappet shaft. A cam on the tappet " shaft depresses the rocking shaft at each revolution; this, how- " ever, does not affect the series of cards, unless the catch is in " gear with the ratchet wheel, then the barrel is moved round, " and the tappet on the card pushes one of the needles forward. " The projecting part of the T-shaped portion of the needle " comes in contact with the rectangular part of the shaft on " which the segmentally-ended duplex lever is fitted. This moves " the lever about its axis, and so draws the wire cords as to " bring the required shuttle box in a line with the shed."

" Another of the present improvements is a modification of " the first arrangement applied to the purpose of actuating ver- " tical shuttle boxes. A cam on the tappet shaft gives motion " to a lever centred on a stud in a frame. This lever is connected " by a link to an arm or tail-piece on the axis of a tappet disc " and ratchet wheel, to which it gives motion. This disc is made " with projections on its periphery; the irregular surface of the " disc serves to depress more or less a lever, which is centred at " the lower part of the loom framing. This lever is connected " to the shuttle boxes, so that as the disc rotates, the projections " depress the lever so as to bring the lower shuttle box up to the " race, and when the lever is in contact with the recessed portions " of the disc, the upper box is brought into the proper position " for weaving.

" The second part of these improvements has reference to the " arrangement of parts for effecting the picking motion, so as to " obtain a series of picks in succession from one side of the " loom. The tappet shaft has fitted near to each end, and inside " the framing, a duplex cam, which runs loosely on the shaft; " either of these cams may be coupled at pleasure, so as to rotate " with the shaft, and when so coupled, the duplex cam causes " the picking stick to make two shots for each revolution of the " tappet shaft." The couplings are moved to and fro on the tappet shaft, by means of a lever and wheel with " segmental " projecting pieces."

" The third part of the invention consists in manufacturing " a particular kind of sail cloth or canvas by power." This is by weaving with certain portions of the weft, and certain portions of the warp of stouter yarn than the rest. The two last parts of the invention are not mentioned in the final specification.

In the final specification an arrangement is described for actuating the headles. On the tappet shaft is a pinion, which gives motion to a wheel keyed on a supplementary shaft; on this shaft is a compound cam for depressing the treadles in the required order. The cam is formed, by preference, of four discs, to which are bolted segmental plates which act on the rollers of the treadles. In weaving heavy fabrics, the patentee proposes to obviate the drawing in of the weft, by employing a shaft carrying two bent arms, the extremity of each arm is furnished with a pin, which passes down between the warp a short distance inwards from the selvage; when the lay beats up a tappet raises the pins out of the warp.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1861, December 24.—Nº 3215.

BODMER, Louis Rudolph.—(*A communication from Charles Hippolyte Tessier.*)—" This invention relates to certain improve- " ments applicable to the ordinary loom for the manufacture of " sacks, knapsacks, cases for mattresses, pantaloons, and other " seamless hose, and also for the manufacture of cloth or goods " of double the width of the loom." The patentee gives diagrams shewing the order of working the treddles and heddles for various fabrics.

" For weaving seamless sacks of single cloth the arrangement " of the loom is the same as for ordinary cloth, only there are " four healds employed instead of two." For closing the sack two supplementary treddles are used.

" For making sacks without seams in trellis the same arrange- " ment of loom is used as for seamless sacks in single tissue, but " 8 healds and 8 treddles are used." " For the less perfect, so " called fern-leaved trellis, only 6 healds and 6 treddles and 2 " supplementary treddles are used."

" For pantaloons and other objects of the same nature without " seams the arrangement of the loom remains the same as for the " sacks, trellis, or tick above described, but small supplementary " reeds and healds are added on the right and on the left by " *means of* hooks for enlarging and diminishing the hose accord- " *ing to requirement.* The main reed as well as the healds can

“ by drawing a small bolt be divided into two when the work “ has advanced to the leggings.”

[Printed, 10*d*. Drawings.]

A.D. 1861, December 31.—N° 3260.

TONGUE, WILLIAM.—The patentee says :—“ The first part of “ my invention consists in the application, to the manufacture of “ what are known as plain, twilled, ribbed, corded, fancy, damask, “ jacquard, terry pile, cut pile, and raised pile woven fabrics, also “ what are known as looped, warp, traverse warp, knitted and bobbin net, or twist lace, fabrics of the fibres taken from the “ stalks or stems of the ‘ Pederia fœtida,’ order ‘ Convolvulaceæ,’ “ a creeping or climbing plant growing in ‘ Assam ’ and other “ parts of eastern Asia, the ‘ Marsdenia tenacissima,’ order ‘ As- “ ‘ clepiadaceæ,’ the fibre from which is known as ‘ jette fibre.’ “ The ‘ Calotropis gigantea,’ order ‘ Asclepiadaceæ,’ a plant “ growing in all parts of the East Indian peninsula, the fibre from “ which is known as the ‘ mudar,’ or ‘ yercum ’ fibre, and the “ ‘ Beaumontia grandiflora,’ a tropical plant of the order ‘ Apocy- “ ‘ naceæ.’ ”

“ The second part of my invention consists in the application, “ to the manufacture of woven fabrics known as ‘ gauzes,’ of the “ fibres taken from the pods, and surrounding the seeds of the “ following plants, namely, the ‘ Calotropis gigantea,’ order ‘ As- “ ‘ clepiadaceæ,’ a plant growing in all parts of the East Indian “ peninsula ; also the ‘ Stephanotus floribunda,’ a tropical plant “ of the order ‘ Asclepiadaceæ ;” also the ‘ doora fibre,’ from “ Goozerat, and other parts of India ; also the ‘ Beaumontia “ ‘ grandiflora,’ a tropical plant of the order ‘ Apocynaceæ.’ ”

“ The third part of my invention consists in crossing the warp “ threads in the manner known as ‘ cross weaving,’ when manu- “ facturing woven fabrics known as ‘ gauzes,’’ in the manner “ and from the materials described in the second part of my in- “ vention.”

[Printed, 4*d*. No Drawings.]

A.D. 1861, December 31.—N° 3262.

TONGUE, WILLIAM.—“ This invention consists in the applica- “ tion, to the purposes of covering umbrellas and parasols, of “ fabrics woven entirely or in part from the fibres obtained from

" the stalks or stems of one or all of the following plants, " namely, the 'Bœhmeria nivea,' 'Bœhmeria puya,' and other " slightly different varieties of the species 'Bœhmeria,' order " 'Urticaceæ,' the fibres of which are indiscriminately known as " 'China grass' and 'rhea fibre,' the plants growing in India, " Assam, and other parts of eastern Asia; also in the application " to the purposes of covering umbrellas and parasols of fabrics " woven entirely or in part from the fibres obtained from the " stalks or stems of any or all of the following plants, namely, " the 'Urtica heterophilla, or the 'Neilgherry nettle' of the order " 'Urticaceæ; also the 'Pederia fœtida,' order 'Convolvulaceæ,' " and the 'Marsdenia tenacissima,' order 'Asclepiadaceæ,' (native " name 'jettee fibre'), creeping or climbing plants growing in " Assam and other parts of eastern Asia and the Eastern Archipelago; also the 'Calotropis gigantea,' order 'Asclepiadaceæ,' " growing in various parts of the Indian peninsula, the fibre " from which is known as the 'mudar' or 'yercum fibre;' also " of the 'Beaumontia grandiflora,' a tropical plant of the order " 'Apocynaceæ.'"

[Printed, 4*d*. No Drawings.]

1862.

A.D. 1862, January 4.—N° 31.

CROSS, Christopher, and PADMORE, Edward.—(*Provisional protection only.*)—" Improvements in the manufacture of " pile fabrics, and in machinery or apparatus employed therein."

First, the inventors give diagrams showing how they " arrange " the picks so as to form both the foundation and pile of the " fabric."

Secondly, they " introduce various materials of various colors " into the aforesaid pile fabrics."

Thirdly, they " cut the pile of any weft pile fabric, as the fabric " is woven, by introducing into each race a strip of metal or other " suitable material having a sharp cutting edge, so that as the " fabric advances to the breast beam, each race may be cut and " *thereby form* the pile," or they " place on the breast beam as " *many guides* as there are races in the material, and employ a

" similar number of circular cutters, extending transversely across
" the loom."

[Printed, 8*d*. Drawing.]

A.D. 1862, January 15.—N° 112.

LORD, EDWARD.—(*Provisional protection only.*)—" This invention
" tion relates to the manufacture of check straps, and it consists
" in applying vulcanized india-rubber or other suitable material
" to such check straps for the purpose of rendering them elastic,
" so that when struck by the picker or picker stick to propel the
" shuttle through the shed, they will expand and be again in the
" proper position for checking the momentum of the picker or
" picker stick."

[Printed, 4*d*. No Drawings.]

A.D. 1862, January 16.—N° 121.

TRISTRAM, WILLIAM. — (*Provisional protection only.*) —
" Certain improvements in power looms for weaving." The
" improvements consist in the novel application of india-rubber
" or other elastic spring buffers or stoppers to receive the concussion
" sion of the slay to limit its throw, and prevent it 'beating up'
" more closely sometimes than at others. These springs may
" either be placed on the slay, and abut against the breast beam,
" or be placed upon the 'breast beam,' or on both, and may consist
" sist of any convenient description of spring, either a strip of
" projecting india-rubber, or a helical or other spring; the object
" being to prevent the slay and reed from 'beating up' beyond
" a certain regular and given point."

[Printed, 4*d*. No Drawings.]

A.D. 1862, January 18.—N° 131.

EMMOTT, THOMAS, and TRAVIS, JOSEPH.—" This invention
" relates to the manufacture of piled fabrics, the pile of which is
" produced by the weft threads floating over the warp threads.
" The principal feature of novelty consists in the application of
" coarse binding weft threads to form the back of the fabric, and
" finer weft threads for the face; also in the application of coarse
" warp threads to form the back of the fabric, and finer ones to
" form the face."

[Printed, 8*d*. Drawing.]

A.D. 1862, January 20.—N° 141.

BARBAT, Léonard.—This "invention consists in the employ-
" ment, for the manufacture of hats and coverings for the head
" of different kinds, and chiefly of fancy hats, of a fabric having
" its warp and weft of horsehair, or other animal hair of a similar
" nature only, or of the said animal hair having either its warp or
" weft of silk, cotton, or other material combined with fabrics
" composed of other materials. The fabric may also be made of
" animal hair and vegetable hair or fibre alternately, or mixed.
" (Vegetable hair is obtained from the leaves of the lupis, the
" abaca, aloes, and other plants furnishing an analogous
" material.)"

[Printed, 4*d*. No Drawings.]

A.D. 1862, January 20.—N° 144.

BOALER, William. — (*A communication from John Adams Rhodes.*)—" Certain improvements in the method of sizing paper,
" yarns, and woven fabrics, and in machinery or apparatus con-
" nected therewith." "The invention consists in the employment
" of steam in combination with pure starch or other sizing
" material directly upon the paper, yarn, or cloth, in the sizing
" vessel or receptacle, or upon the surface of the sizing roller or
" its equivalent, in the manner herein-after described.

" In carrying out this invention a steam pipe is arranged in con-
" nection with a sizing vessel or receptacle, the said pipe extend-
" ing lengthwise of the vessel near to the edge of the same, and
" having a number of branch pipes communicating therefrom into
" the vessel or receptacle, and provided with a vacuum valve, and
" an escape cock together with a suitable induction valve for
" regulating the supply of steam to the receptacle. The steam is
" ejected directly upon the paper, yarn, or cloth from beneath the
" surface of the sizing in the receptacle through perforations in
" the ends of the branch pipes, or a slit cut in the end of each, or
" formed by flattening the same."

[Printed, 10*d*. Drawing.]

A.D. 1862, January 27.—N° 206.

CARPENTER, Samuel Alfred.—This " invention consists in
" *covering* and combining strips or bands of steel for crinoline
" *or crinoline skirts*, by means of a fabric into which two or more

" of the said strips or bands are woven side by side." "Any " number of the said strips or bands of steel may be woven in " the fabric side by side, so as to form crinoline of any width. " The strips or bands of steel may be separated by any desired " width of the woven fabric, and a narrow edge of fabric may be " made on one or both edges of the crinoline for the purpose of " attaching it to the article of dress."

[Printed, 6*d*. Drawing.]

A.D. 1862, January 28.—Nº 219.

MENNONS, MARC ANTOINE FRANÇOIS.—(*A communication from Claude Crozet.*)—(*Provisional protection only.*)—This invention "consists in an improved distribution and arrangement of " the mechanism of power and hand looms, by means of which " superposed pieces of the tissue may be produced in such a position as to be constantly under the eye of the weaver, who is thus " enabled to examine and control the progress of the work."

[Printed, 8*d*. Drawing.]

A.D. 1862, January 29.—Nº 233.

McKEAN, JOHN, and GABBOTT, JAMES.—" This invention " relates to the application or employment and use of a novel " material or composition for the purpose of sizeing or dressing " and preparing warp yarns for the loom. The basis of this " composition or material is what is technically or commercially " known as 'China clay,' or siliceous and aluminous earth, and " this clay is rendered available for use in the treatment of warp " yarns by admixture with linseed or other oil, and glue, or " glutinous matter, obtained from any convenient and practical " source."

[Printed, 4*d*. No Drawings.]

A.D. 1862, January 29.—Nº 242.

COLLIER, MATTHEW.—These improvements relate to looms for weaving narrow fabrics. The patentee says :—" According to " my improvements, I arrange the warp threads vertically, and " the reeds in a horizontal position. The shuttles, therefore, " travel horizontally, and I cause them to be thrown in a diagonal " direction in reference to the reeds, or at right angles thereto, " the fabrics being woven side by side, but with the surfaces,

" which constitute their breadths, opposite to each other. Or, " according to another arrangement, I combine these relative " positions of reeds and shuttles with a horizontal disposition of " the warp. The reeds and shuttles I mount together in a frame, " which has the required motion imparted by any ordinary means, " and the picking is effected by the arrival of one end of a lever " in contact with an inclined plane, by which means it is caused " to turn upon a centre, and thrust forward a frame, which " embraces the shuttles; another incline effects after the same " manner the passage of the shuttles in the other direction; in " order, however, to ensure their complete motion, I apply spring " pieces, with which they arrive in contact should they have failed " in passing through the shed."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1862, January 31.—N° 265.

STEVENS, THOMAS.—(*Provisional protection not allowed.*)— " This invention consists in manufacturing book markers by " machinery for weaving ribbons, and in producing figures, " designs, and mottoes thereon of various descriptions and colors, " according to the nature of books for which the markers are " intended."

[Printed, 4*d*. No Drawings.]

A.D. 1862, February 10.—N° 345.

SMITH, GEORGE.—" Improvements in shawls." The patentee says:—" This invention is designed partly to add to the usefulness of shawls of any shape by the addition of what I shall " term a 'leaf' or 'leaves' to increase the warmth of either " square or long shawls to any required degree, and partly to " render shawls more elegant in appearance by the way in which " the said leaf or leaves will be added to them. I propose to " accomplish these objects by adding an extra piece or pieces of " the same or any other fabric (and which, for the purpose of " explanation, I term 'leaf or leaves') to the shawls, either by " weaving, sewing, or any other means, in such a manner that " when the shawl is worn it may present at the back, two, three, " four, or any number of separate 'leaves' or pieces of material " falling within the size of each other externally, and all within " the size of the shawl itself to which the 'leaves' are attached."

[Printed, 10d. Drawing.]

A.D. 1862, February 10.—N° 346.

DANKS, JOSHUA.—(*Provisional protection only.*)—"The im-"provements relate to the manufacture of mats and rugs com-"posed of cocoa-nut fibre, or partly of cocoa-nut fibre combined "with wool or other material, with a pile face on each opposite "surface thereof, so that either surface may be used as the upper "surface." "In place of employing a number of back chain or "warp threads to each row or series of tufts of pile of which the "mat or rug is composed, as is the practice when making door "mats of cocoa-nut fibre with one pile surface," the inventor finds "it necessary to employ only two, one upon which a row of "tufts of pile for one surface are formed, and the other for a row "of tufts of pile for the opposite surface, and these chain or warp "threads, with their rows of pile, being repeated according to "the width or length of mat or rug required, are connected "together by shoots of weft."

[Printed, 4*d*. No Drawings.]

A.D. 1862, February 13.—N° 386.

LAWTON, JOSEPH FEARNS, and LAWTON, JOHN.—"Im-"provements in the manufacture of flannel for shirtings and "other articles of apparel." "The invention consists in the "combination in flannel for such purposes of silk and wool "(instead of using all wool as heretofore)."

[Printed, 4*d*, No Drawings.]

A.D. 1862, February 17.—N° 419.

CRAWFORD, HUGH, CRAWFORD, JAMES, CRAWFORD, ROBERT, and TEMPLETON, ROBERT. — "This invention "relates to the arrangement and construction of looms for "weaving. The object of the improvements under one head of "the invention, is to ensure an uninterrupted supply of weft by "self-acting means when the weft in the operating shuttle is "exhausted.

"Under one modification of these improvements, the pirn or "cop on which the weft is wound is made with a slot in the "backward end of it, so that when placed on the shuttle spindle, "the end of a curved blade spring, fitted in the shuttle and "extending longitudinally, passes under the weft wound on the "pirn. A slot is formed in the side of the shuttle to admit of a "blade spring being fitted therein; the end of this spring is bent "at right angles, and enters through the side of the shuttle, its "inner end being notched, so that when the upper blade spring "is held down by its end passing under the weft on the pirn, it "serves to retain the lateral spring, and prevent its springing "out beyond the level of the side of the shuttle. In weaving "with a shuttle of this kind, when the weft is exhausted, or "nearly so, the longitudinal blade spring is liberated, which "releases the side spring, so that it projects beyond the side, and "in its traverse into the circular shuttle box, fitted at one side of "the loom, it comes into contact with a mechanical arrangement "that moves round the shuttle box, and carries away the "used shuttle, and brings another one with a full pirn into "action."

"The second part of this invention has reference to an arrangement "to avoid the stopping of the loom when the weft is either "broken or exhausted. The spindle of the weft fork is carried "on a vertical arm fast to a transverse shaft, at the other "extremity of which is a laterally projecting arm, which rests "against a bow piece that is connected to a vertical pin extending "up through the bracket piece before referred to, carrying the "spring which retains and liberates the shuttle-box. Upon the "weft fork being brought into action by the absence of the "weft, the laterally projecting arm raises the vertical spring, which "liberates the retaining spring, and the shuttle box is free to be "turned partially round in order to bring another shuttle into "use. Provision is also made for drawing back the 'take up' "one, two, or other number of shots, so that the new weft may "be closely beaten up, and no breaks occur in the cloth. A "small gauge piece is bolted to a lever, having two laterally pro-"jecting arms; this lever is carried on a stud in the loom "framing. The lower part of the lever is connected by a spring "to a cross rail of the framing, whilst the upper arm forms a "pawl, which falls into the ratchet wheel of the 'take-up' "motion, so that according to the extent of traverse afforded by "the guage piece, any required number of teeth of the ratchet "wheel may be drawn back when the weft fork comes into "action, either from the breakage or running out of the weft."

[Printed, 1s. Drawing.]

A.D. 1862, February 19.—N° 440.

ADAMS, William Bridges.—" Improvements in springs, and " their arrangement for moving and stationary purposes." Amongst others, the patentee shows " springs formed of tubes, " with an open slot applied to a gear or tooth wheels to prevent " snatches and breakage of the teeth." " The tire with the " teeth " is separate from the wheel, which is attached to the shaft, and can move partly round within the tire. Between the wheel and the tire are pierced circular holes, half in each, " the " holes being undercut so as to leave a projecting fillet or flange " at each end." The tubular springs " are cut to lengths to fit " in between the fillets or flanges, and being compressed in " diameter by means of the open slot, are put into the holes, thus " retaining the wheel and tire in the same plane, but by reason " of their compressibility laterally permitting the tire to move " partly round on the wheel." The arrangement of springs is applicable " to the machinery for spinning and weaving, tending " to prevent the breakage of yarns and threads."

[Printed, 10*d*. Drawing.]

A.D. 1862, February 22.—N° 472.

KIRKWOOD, James.—This invention relates to looms for weaving " figured fabrics of and similar to the Paisley shawl " class."

" The improvements are contrived to permit of the application " of steam or other mechanical power, and in one modification " of loom embodying them are combined with jacquard pattern " mechanism of the single lift class. This jacquard mechanism " acts on the warps by means of the ordinary harness mounting and " a set of heddles; it is also made to regulate or determine and to " effect the change of the shifting shuttle boxes, and at the same " time to regulate or determine the picking movements and the " action of the weft fork mechanism. The shuttle boxes may be " arranged for various numbers of shuttles, and for shifting to " the extent of either one or more boxes at a time.

" When arranged for shifting one box at a time, each shifting " box has fixed to its back a kind of single or double ratchet " rack, with the inclined teeth pitched at the distance of two " *boxes in depth, and with* this rack there are arranged to gear

" two spring catches centred on the lathe frame, in such positions " that when one catch is in gear with a rack tooth, the other " catch is half way between two teeth. When a downward shift " is required, the catch in gear is moved back, and the shifting " box falls by its weight, or is otherwise shifted into gear " with the other catch. The catches are connected to or acted " upon by levers, carried in such a way as on the lathe moving " forward to be brought against an obstructing piece, which piece " causes one or the other catch to be moved, accordingly as it is " placed in the path of one lever or the other by one of the " jacquard tails, or the catches may be actuated by jacquard tails " connected directly to them. The shifting shuttle box is lifted, " when required, by means of a lever acted upon by a special " jacquard tail, and in rising, the rack forces back one catch, and " allows the other to fall into gear and support the shuttle box. " To provide for shifting two or more boxes at a time three " or more catches are required, and the rack must be differently " pitched to correspond."

" The usual mechanism for stopping the loom when the shuttle " does not properly reach its cell in the shuttle box is modi-" fied to suit the improved arrangements, the back of each cell " being fitted with a lever, which is moved outwards by the shut-" tle when properly home, and which acts on a lever carried by " the lathe, which last lever would otherwise cause the stoppage " of the loom, as is well understood. To prevent the pressure of " this lever on the shuttle box from obstructing the easy shifting of " the shuttle box, an inclined piece is fixed on the loom framing " in such a position as on the lathe moving forward, to move the " lever free from the shuttle box at the time when the same may " have to be shifted. The picking motion is contrived so that " the picking can be effected twice or oftener in succession from the " same side, and in the arrangement preferred for this purpose " the picking sticks or levers project upwards from centres near " the axis of the lathe, and are actuated by side levers, capable of " being depressed by cams, projections, or pulleys on the low " shaft or on the crank shaft of the loom, the former, when used, " going at the same speed as the latter. The part acted upon " to produce the motion of each side lever is a movable piece " capable of being shifted sideways or transversely so as not to be " *acted upon.* The movable pieces of the opposite side levers " *are connected* together and are moved by a jacquard tail or tails

" as required, one being in gear when the other is out of gear. " The jacquard tail by which the picking movements are thus " determined is also made to suspend the action of the weft fork " on either side when, from the order of throwing the shuttles, " no thread can lie in its way to prevent its stopping the loom.

" According to another plan the weft fork or forks may be pre- " vented from causing the stoppage of the loom unnecessarily by " making the piece or pieces which cause the stoppage (by the " fork or forks coming in contact therewith) movable and capable " of being shifted by the stroke of the picking stick and driver, so " that the action of throwing the shuttle from either side will, as " it were, throw the fork out of gear at that side." "A shuttle " guard is suspended in front of the reed, consisting of a bar " fitted with points projecting downwards, and which, when the " shuttle is obstructed in going across, prevents it from flying out " of the loom."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, February 22.—N° 477.

TOWNEND, JAMES.—(*Provisional protection only.*)—"This " invention relates to means or apparatus for working the healds " in looms for weaving, and the improvements consist in the " employment of two grife levers hinged at one end to a stud, on " which they are capable of vibrating or oscillating, and arranged " in such manner that the other ends are guided by a vertical " slide frame, so that the upright wires can be lifted and lowered " vertically, and thereby avoid or dispense with long or oval eyes " in the needles. The upright wires are made with double hooks, " so as to take on to either of the levers, according as the needles " are actuated by the cards or indicated by the pattern surface, " the one lever being operated to lift, whilst the other lowers the " upright wires. The said uprights are so constructed as to pass " through the bottom board, and thereby dispense with neck " bands, and also avoid the rebound of the uprights and con- " sequent vibration of the warp now produced by the uprights " dropping on the bottom board, the said uprights being at all " times suspended by one or other of the two levers." The inventor also employs "a catch lever for working the cylinder " backward without operating either the engine or loom."

[Printed, 4d. No Drawings.]

A.D. 1862, February 24.—N° 487.

CUNNINGHAM, John, and CUNNINGHAM, Robert.—(*Provisional protection only.*)—"This invention relates to an im-" proved ornamental fabric of or similar to the Paisley shawl " class, and to improvements in weaving, and in jacquard appa-" ratus for weaving such and similar ornamental fabrics.

" The improved fabric is of the kind having two or more run-" ning covers of differently colored wefts, there being by this " invention a set of what may be termed 'back' warps introduced, " which 'back' warps the weaving action is made to interweave " with the portions of the colored weft ordinarily forming 'floats' " on the back of the fabric. In some cases, however, some of " the wefts may be allowed to form 'floats,' to be afterwards " clipped or cropped off for the purpose of lightening the fabric."

" Another portion of the present improvements in weaving the " class of fabrics herein-before described or indicated, relates to " the production of what are known as 'comparted middles,' " of, for example, two differently colored grounds in the width " of the shawl or plaid piece. The sheds for both middles are " necessarily raised simultaneously, but ordinarily the wefts for " the two middles are woven in one after the other, and in weaving " each the shuttle is thrown completely across the piece, but the " shed of that part with which it is not to weave is neutralized " by a set of pressing 'wires' or a 'cut mounting' arranged to " hold it down between the harness and the reed. The respective " parts of the sheds are held down alternately accordingly as one " or other weft is being woven. In this method considerable " extra labour is expended in producing the effect, but by the " present invention that is almost entirely saved by dispensing " with the 'pressing wires' or 'cut mounting,' and by weaving " in the two differently colored wefts simultaneously by means of " what is known as a 'sewing frame.' This sewing frame is " arranged to work two shuttles simultaneously, each operating " over only so much of the width of the fabric as is necessary to " supply weft to the respective 'comparted middle.' "

" The improvements in jacquard apparatus have for object by a " simple movement to enable the weaver with only one set of cards " to produce the pattern or certain portions of it on either side of " the cloth, as may be required."

[*Printed, 4d.* No Drawings.]

A.D. 1862, February 27.—No 541. (* *).

FOSTER, John Robert.—" Improvements in the manufacture " of bullion fringe or cord."

"This invention consists in first weaving the materials into a " a fabric, and afterwards twisting the fabric so woven in order " to form bullion fringes or cords."

" I arrange in a loom a warp or warps consisting of a very few " threads of cotton, silk, or other textile material, say from six " to twelve, or thereabouts, and parallel with this warp and on " each side thereof I arrange a wire, each wire being actuated by " the harness of the loom. These wires are for the purpose of " forming a loop or terry on each side of the warp, and they are " to be respectively placed at such a distance from the warp as " may be necessary for the formation of various sized loops, so as " to form various sizes of bullions. The bobbins of the shuttles " are to be wound with two or more ends of worsted, silk, or " cotton, so as to form a thick weft, and consequently a substan- " tial body of fabric when woven." The loom may work any desired number of separate sets of warps, wires, and shuttles; " I " cause the warps and wires to be actuated by the treddles and " harness in the ordinary manner of working such parts, and " I shoot the worsted or other material between the warp or " warps and alternately under and over the wires on each side " thereof, the result being that the central warp and its corre- " sponding width of weft form a woven fabric, and the worsted " or other material which the bobbin contained, and which " remains on each side the warp and around the wires, is thereby " necessarily formed into loops of considerable and various sizes." " In some cases I twist the ends or threads of worsted, silk, or " cotton, before I wind them on the bobbins of the shuttles, so " as to form a twisted weft." The fabric thus manufactured presents a comparatively flat appearance; it is converted into a circular form by attaching it to a twisting apparatus, such as that used for twisting ropes, and presents a very superior appearance to that of the ordinary bullion. " I prefer to subject the cord " thus made to the action of steam in order to set it, and also to " expand the substance thereof." " It is then to be made into " fringe for cornices, poles, and other such purposes, by weaving " it in a loom."

[Printed, 4d. No Drawings.]

A.D. 1862, March 3.—N° 576.

SCHOFIELD, Joseph.—"Improvements in looms for weaving." "This invention relates to means of letting-off or delivering the "warp from the warp beam as the weaving proceeds, and consists "in applying and arranging apparatus in such manner as to "maintain uniformity of tension on the warp threads, and only "to let off, deliver, or supply the said warp as it is taken up or "drawn forwards by the introduction into the shed of the weft "threads, and by the beat up of the lay or batten; consequently, "if there is no shoot of weft in the shed when a pick is made, "and when the lay beats up, there will be no letting off from the "warp beam. This is effected as follows:—A spur wheel is fixed "on the warp beam which gears with a pinion attached to a "ratchet wheel, supported on a stud fixed to the loom end. A "double catch or escapement lever is hinged on another stud "fixed to the loom end, and connected by a rod to the ordinary "weighted lever, which supports the roller over which the warp "passes from the beam, so that when the warp or the roller over "which it passes is drawn forward to the extent of one half tooth "of the ratchet wheel one end of the escapement catch is lifted, "and allows or admits the warp to be delivered as required, the "other end of the escapement preventing slipping thereof by "taking into the ratchet for the time being until the weighted "lever brings the roller back to its former position."

[Printed, 10*d*. Drawing.]

A.D. 1862, March 3.—N° 580.

QUIQUANDON, Jean Baptiste Andre.—(*Provisional protection only*.)—The inventor says,—"This invention relates to an "improved mode or method of working the pattern cards in "jacquard machines, and to a peculiar construction of pattern "card, which improved card I call the 'composteur quiquandon,' "and by the use of which one set of cards may be made to serve "for any number of different designs by suitably adjusting or "modifying the same to suit the particular design or pattern to "be produced.

"According to this invention the series of pattern cards in "lieu of being connected together in the form of an endless web "or chain as heretofore, and consequently occupying a con- "siderable amount of unnecessary space, are used separate and

" detached from each other, one card being placed immediately
" behind another in a suitable support or holder in front of the
" needles. The front card after having acted upon the ends of
" the needles is made to descend, and is deposited by a traversing
" carriage or other convenient arrangement of self-acting mechanism in the rear of the other cards, whilst the second card
" comes into operation, and is in its turn lowered and placed
" behind the first, and so on throughout the series.

"The improved card herein-before referred to as the 'com-
" 'posteur quiquandon' consists of a metal plate perforated with
" as many holes as there are needles in the machine, and having
" its edges turned over so as to form a convenient receptacle for
" two other plates which are slid into it, one behind or over the
" other, the card being thus composed of three plates.

"Both the moveable plates are perforated with holes corresponding exactly in number and position with those in the
" first plate or holder, but the holes in the second or middle
" plate are of slightly larger diameter than those of the two outer
" plates, so that a rim or shoulder will be formed round the
" holes in the middle plate by the edges of the smaller holes in
" the two outer plates, which rims serve to retain in their places
" small discs or stopper plates inserted into those holes of the
" middle plate which are not intended to act upon the jacquard
" needles."

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 13.—N° 683.

CUNNINGHAM, John, and CUNNINGHAM, Robert.—
" This invention relates to an improved ornamental fabric of or
" similar to the Paisley shawl class, and to improvements in
" weaving and in jacquard apparatus for weaving such and
" similar ornamental fabrics.

"The improved fabric is of the kind having two or more
" running covers of differently colored wefts, there being by this
" invention a set of what may be termed 'back' warps introduced,
" which 'back' warps the weaving action is made to interweave
" with the portions of the colored weft ordinarily forming 'floats'
" on the back of the fabric. In some cases, however, some of
" the wefts may be allowed to form 'floats,' to be afterwards
" clipped or cropped off for the purpose of lightening the
" *fabric.*"

"Another portion of the present improvements in weaving " relates to figured 'plain' cloth, and in carrying it out a set of " heddles and a harness are employed, and the warps are entered " through them as follows :—Two warp threads are entered through " each eye or mail of the harness, and are then entered individually through the heddles, so as to give the latter the power " of operating upon the warps, as in working a common plain " cloth. When a portion of the warps is raised by the harness to " form figure, each alternate thread of the portion so raised is " depressed by the heddle action so as to cause the weft to interweave with it and form a plain cloth. The same heddles are " depressed during the throwing of the run of shots required to " form one line of the pattern, the heddle action being alternated " for each successive run of shots. By this means the power of " a given harness and its actuating apparatus is doubled."

"Another portion of the present improvements is designed to " supersede the 'double-neck' harness employed in weaving " harness goods."

"Another portion of the present improvements in weaving " relates to the production of what are known as 'comparted " 'middles,' of, for example, two differently colored grounds in " the width of the shawl or plaid piece. The sheds for both " middles are necessarily raised simultaneously, but ordinarily " wefts for the two middles are woven in one after the other, and " in weaving each the shuttle is thrown completely across the " piece, but the shed of that part with which it is not to weave is " neutralised by a set of 'pressing wires' or a cut mounting " arranged to hold it down between the harness and the reed. " The respective parts of the sheds are held down alternately " accordingly as one or other weft is being woven. In this " method considerable extra labour is expended in producing the " effect; but by the present invention that is almost entirely " saved by dispensing with the 'pressing wires' or cut mounting " and by weaving in the two differently colored wefts simultaneously by means of what is known as a 'sewing frame.' " This sewing frame is arranged to work two shuttles simultaneously, each operating over only so much of the width of " the fabric as is necessary to supply weft to the respective " 'comparted middle.'"

"*A further improvement* in weaving shawls or other fabrics " *with 'middles' is as follows* :—Instead of dividing the ordinary

" warps into chains and dyeing or staining sections of them to " suit the shape and colour of the middle or middles wanted, an " additional chain of warps is employed for each middle in the " breadth of the piece, and is stained or dyed across its whole " breadth in sections which longitudinally agree in colour and " length with the middles required. These additional warps are " entered through the mails of the harness along with the ordinary " warps and through a set of heddles distinct from those of the " ordinary warps. Either the ordinary warps or the middle warps " are caused, by the combined action of the heddles and harness, " to come to the right side of the cloth, when required, so as to " suit each shot of weft as it is thrown, and thereby the middles " and the other parts of the piece will be woven with that colour " of warps which respectively belongs to each."

"The improvements in jacquard apparatus have for object, " by a simple movement, to enable the weaver, with only one set " of cards, to produce the pattern, or certain portions of it, on " either side of the cloth, as may be required."

[Printed, 1*s.* 2*d.* Drawing.]

A.D. 1862, March 13.—N° 688.

HOWARD, John, and BULLOUGH, John.—(*Provisional protection only.*)—This invention relates to a means of stopping a " warping or beaming machine when one or more of the warp " threads break by means of a current of electricity. The electric " spark or current acts upon a magnet which is in connection " with a catch or knocker-off piece. Each thread of the warp " supports a pin, which, when so supported, can only touch one " of two conducting surfaces, connected respectively by wires to " the negative and positive poles of the battery. The moment a " thread breaks its pin falls on the other conducting surface, and " thus forms a connecting link betwixt the two poles. The electric " current thus established charges a magnet, which by attracting " a catch or other suitable agent brings the knocking-off piece " into action. The thread being pieced again supports its pin " above one of the conducting surfaces, thereby breaking the connection betwixt the two poles, so that the magnet having lost " its power cannot attract the agent which brings the knocker-" off into action, and so the machine continues working till " another thread breaks and allows a pin to fall, which acts in " the manner above described, and stops the machine."

[*Printed, 4d.* No Drawings.]

A.D. 1862, March 15.—N° 725.

PICKSTONE, WILLIAM.—" This invention has for its object
" improvements in the manufacture of piled fabrics. For these
" purposes a fabric is woven consisting of cotton warp wefted
" with cotton yarn to form the ground or body of the fabric, and
" it is also wefted with a mixed weft, consisting of cotton and
" woollen or worsted yarn, such mixed wefting being suitably
" carried or floated on the face as to admit of the mixed weft
" being cut into a pile as when weaving plush, velveteens, and
" such like fabrics as have their surface or floating wefts cut
" into a pile. By thus using combined weft for producing the
" pile of a fabric, a peculiar effect will be produced when such
" fabric is dyed by reason of the difference of tint or character of
" color imparted by the dye to the animal and to the vegetable
" fibre of the pile."

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 17.—N° 739.

COURTAULD, JOHN MINTON.—" Improvements in power
" looms." This " invention consists in the introduction into
" the web or fabric in course of manufacture of a slide, lever, or
" other mechanical agent connected with the gear by which the
" loom is thrown in and out of work, and made to act when no
" shoot is laid in in such manner as to throw the loom out of
" work."

[Printed, 8*d*. Drawing.]

A.D. 1862, March 22.—N° 793.

ABERCROMBIE, DAVID.—" This invention relates to improve-
" ments in power looms for weaving fabrics such as 'tarletans,'
" having what are termed 'cords' formed as regards the weft,
" by throwing two or more shots in the same shed. Hitherto in
" looms arranged for weaving such goods with ordinary shedding
" movements and with shifting shuttle boxes on one side only,
" the contrivances used for keeping the shed open whilst the
" successive 'cord' shots are thrown have been such as to require
" three or other odd number of shots to be laid in the shed, and
" as only two or other even number of 'cord' shots can be thrown
" at once, the odd shot has been made with the ordinary or
und weft, or with that which the pattern requires to follow

" or precede the 'cord' shots. By the present invention, how" ever, the odd shot in the 'cord' shed is avoided."

" In a loom provided with one modification of the improved " contrivances the cams or tappets for actuating the shedding " levers or treadles are carried by the low or second-motion shaft " as usual, but instead of being fixed thereon they are formed or " fixed upon a tubular boss mounted loosely on the shaft. During " the plain weaving action the tappets are carried round in the " ordinary way by means of a clutch, but when the shed has to " remain open more than one shot, the clutch is thrown out of " gear at the moment when one of the tappets has depressed its " treadle, and the tappet and treadle remain down, and the shed " remains open as long as the clutch remains out of gear. The " clutch is shaped so as to gear in either of two opposite positions, " and it can be thrown into gear so as to cause the tappets to " resume their action after a half turn, or after a whole turn of " the shaft, or after any required number of half turns."

[Printed, 8*d*. Drawing.]

A.D. 1862, March 24.—N° 817.

STEWART, John.—(*A communication from Louis Joseph Fillion.*) —" This invention relates to a system or mode of renewing the " cards used in jacquard weaving mechanism, so as to avoid waste " of material. Under one modification an old card is taken, and " the layers of paper which form the card are stripped asunder, " and to each layer or half of one card is glued or otherwise " cemented a new strip or length of card paper. The remaining " half of the card is in like manner glued or cemented to another " strip of card paper, so that the parts again form two perfect " cards, and when joined in this manner to the new card paper " are again ready for being punched."

" Another mode or process consists in stripping the old cards " asunder, and cementing the half of one old card to the half of " the other card, so as to make the renewed cards of the original " weight."

" Under another modification, which avoids the necessity of " unlacing the cards, the old or used cards have cemented to " their faces two strips of card paper, each piece extending from " the end or guide holes to the central holes, where the cards are " united or laced together."

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 29.—Nº 879.

COLE, Thomas.—(*Provisional protection only.*)—The inventor says: — "Whereas figured ribbons and other figured textile " fabrics are now made by means of the jacquard machine, now " my invention consists in substituting for the jacquard machine " a machine formed of a horizontal barrel or cylinder with wire " studs attached. These studs in revolving press on iron bolts " which come in contact with hooked rods, and press the same to " the griff, and the griff raises the rods to form the figure on the " ribbon. These rods form part of the invention for which " Letters Patent were granted to David Gardner and myself, on " the 29th day of November 1860, No. 2936. Sometimes I use " slats studded with wire studs, attached or not to the cylinder, " and instead of a cylinder a piece of wood of square or octagon " shape may be used."

[Printed, *4d.* No Drawings.]

A.D. 1862, April 2.—Nº 929.

COLLIER, George, and COLLIER, John. — This invention consists in "mechanism for inserting and withdrawing the pile " wires in weaving carpets and other pile fabrics." "The wires " are withdrawn from the fabric by means of a hook mounted on " or fixed to a carriage, capable of sliding to and fro on a guide " rail, and they are inserted into the shed by an instrument which " may be called a spring clip, and which is also guided in its to-" and-fro movement by an inclined rail or slot, which we prefer " to be fixed at one end and capable of slight movement at that " end nearest the fabric. The withdrawing and inserting instru-" ments are connected together in such manner that they move " simultaneously to and from the fabric, and the wires are " transferred from the hook to the spring clip by means of the " inclined guide rail or slot before named, which forces the spring " clip on to the wire head, whilst the latter is still held by the " hook, and just before the wire has been completely withdrawn, " the hook being freed from the wire head immediately the " return motion is given for inserting the wire. When the wire " is inserted into the shed the lay beats it up to the fell of the " cloth, where a catch holds it in position to be woven in. The " point end of the wire, when withdrawn from the fabric, is " carried opposite the open shed by a lever having a recess in its

" upper end capable of receiving and sustaining the wire, the " lever being operated by a suitably shaped cam, so as also to " support and guide the wire during insertion."

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1862, April 3.—N° 944.

KEMP, William, and COWLEY, Thomas. — These improvements relate to silk pile velvets. The patentees say:—" Now " according to our invention, in manufacturing plain or un- " figured silk velvets we employ two pile warps, each having a " complete number of threads. The warps are carried on two " seperate beams, and two pile warp threads (namely, one from " each beam) are passed through each dent of the reed, and we " make these two threads loop or pass over the wires alter- " nately, that is to say, if one of these two threads loops or " passes over one wire the other is made to loop over the next, " and so on.

" According to our invention, also, we cause that portion of the " pile warp which at any moment is not engaged in making the " pile loop to pass on the surface of the fabric immediately under " the pile loops formed by the other portion of the pile warp, so " that the surface of the body fabric, the shoot of which may be " of cotton, becomes coated with silk.

" In weaving velvet in the ordinary manner it is customary to " introduce three shoots of weft between one pile wire and the " next, and a safe tie has not been made with a smaller number " where a complete pile warp has been looped over each wire. " We, however, use only two shoots between the pile wires, and " we still get a safe tie, as there are in fact four shoots between " one loop and the next of the same pile thread. The improve- " ments above described apply to both terry and cut pile velvet, " except that in manufacturing terry velvet it will usually be " desirable to introduce more than two shoots between the " wires."

[Printed, 6*d*. Drawing.]

A.D. 1862, April 4.—N° 953.

SPENCER, Francis. — (*Provisional protection only.*) — This " invention has reference to that part of the loom known as the " *letting-off motion*, or the mechanism for unwinding the yarn

" off the warp beam, and it consists in supporting the warp beam " upon rollers, to which a positive uniform motion is given at " every pick, or after every two or more picks. The motion for " the rollers may be derived from the tappet shaft or other " convenient part of the loom, and as the surface of the warp " bears on the rollers it is evident that the motion given to " the rollers will unwind a uniform quantity of the warp " threads."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 9.—N° 1006.

RODGETT, SAMUEL.—(*Provisional protection only.*)—" Certain " improvement in power looms." This " invention is designed " for the purpose of dispensing with the weights hitherto em- " ployed to weight the yarn beam at the back of the loom, and " consists in the novel application of a screw and nut or screws " and nuts to the friction rope coiled around the yarn beam. " One end of the rope is furnished with a screw, and the rope is " coiled round the 'beam' as usual, and thence passes under a " pulley, guiding it to the 'rocking' or slay shaft, to which it is " attached by means of a nut in such a manner as to be adjust- " able, so that as the slay vibrates the tension of the yarn is " varied; when 'shedding' it becomes slightly slackened, and " tightened when 'beating up.' "

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 9.—N° 1007.

ANDREW, JAMES EDWARD HYDE.—" Improvements in looms " for weaving." " This invention consists, first, in applying to " the improved horizontal picking motion a metal picking sword " instead of the ordinary picking stick, to which is forged or " otherwise connected a socket containing a picker of leather or " other suitable substance, and the said picking sword may be " cranked to work in the drop box of a loom.

" Secondly, in improvements connected with leading or pattern " chains for regulating the movements of the drop box, and " giving a sliding movement to or reversing the motion of the " pattern cylinder or barrel, or parts thereof, or for other require- " ments in fancy weaving."

The patentee claims,—

" *First, the metal* picking sword with picker attached.

"Secondly, the application and arrangement for bringing the
" wheels, levers, and toothed boss into action or contact with the
" different parts of the pattern chain to weave long or varied
" patterns of cloth by indicating for shuttle motions, picking
" motions, shedding apparatus, or other movements.

" Thirdly, the telescopic segment barrel, indented wheels,
" lifters, and the parts connected therewith, applicable for weaving
" dyapers and other division patterns.

" Fourthly, the modes of working the treddles in fancy looms,
" and the application of a hinged bar and spring for preventing
" injury to the hooks and pegs.

" Fifthly, the improved hooks or jacks for working the
" heddles.

" Sixthly, the placing a guard or bar near the hook to make its
" action more positive than hitherto.

" Seventhly, the improved arrangement for reversing and
" shunting the pattern cylinder laterally to and fro for the purpose
" of obtaining a diversity of pattern.

" Eighthly, the improved appliance for weaving plain and
" twilled cloth, and the application of the same to the picking
" motion of looms to dispense with the ordinary tappet
" shaft.

" Ninthly, the application, separately or conjointly, of the
" cams, levers, and lifters for actuating the shuttle, picking
" barrel, and other motions.

" And, tenthly, the application of the small cam chain at or
" near the lagged barrel shaft, for shunting the barrel laterally,
" or to reverse its motion when indicated by a peg or projection
" on the barrel or on one of the lags."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, April 9.—N° 1010.

BULLOUGH, JAMES, and BULLOUGH, JOHN.—These improvements relate to looms. The patentees say,—" Instead of the
" usual mode of causing the crank which gives the lay its to-and-
" fro motion to be driven at one uniform speed, we give it less
" speed during one part of its revolution than the other part, for
" the purpose of allowing the shuttle time to pass along the race,
" and thereby enable the loom to be worked at an encreased
" speed. We attain this object by means of eccentric toothed
" wheels and chain, by intermittent surfaces, and also by eccen-

" tric surfaces in combination with weights or springs. Another " part of our invention consists in an improved arrangement for " stopping the loom when the weft thread breaks or is absent, " and also for causing the shuttle to stop at the setting on side " and arresting the lay at or about the best position."

[Printed, 10*d*. Drawing.]

A.D. 1862, April 10.—Nº 1022.

ARMITAGE, William.—(*Provisional protection only.*)—" Improvements in looms for weaving." "This invention relates to " the taking up motion, and consists in improved modes of " making it positive. From one of the sword arms or other " working part of the loom, motion is given by a connecting " rod to a double lever having a series of catches above and " below the centre of oscillation, which catches give continuous " motion to a ratchet wheel, communicating by means of " bevil or spur gearing or worms and worm wheels with the " taking up beam. In one of the arms of the double lever " there is a circular slot, in which a stud at that end of the connecting rod descends for the purpose of gradually shortening " the traverse of the catches as the cloth increases in diameter. " This descent of the connecting rod is obtained by jointing it " near the stud to one end of a second double lever having at the " opposite end a slot in which is one of the ends of a rod or bar " resting on the cloth. The extreme ends of the rod or bar slide " in angular slots or grooves fixed to the framework of the loom, " so that as it rises with the cloth, it moves towards the interior " and shortens the length of the second double lever on that side " so as to give a gradually increasing movement of the lever on " the other side, and cause the connecting rod to descend in the " slotted arm of the first double lever with a gradually increasing " movement, so as to shorten the traverse of the catches and " retard the revolution of the ratchet wheel exactly in proportion " to the winding on of the cloth, and thereby produce an efficient " positive taking-up motion. Or instead of placing the stationary " angular slots near the cloth beam, one may be fixed near the " first double lever, so as to shift a stud, and gradually lengthen " the arm of the second double lever on that side, and thereby " *produce the same* effect."

[Printed, 4d. No Drawings.]

A.D. 1862, April 11.—N° 1047.

KNOWLES, Thomas, **HOUGHTON**, James, **KNOWLES**, William, and **HOUGHTON**, William.—(*Provisional protection only.*)—"This invention relates to that class of looms " wherewith change shuttle boxes and jacquard engines are " employed in the weaving of fancy woollens or other heavy " fabrics." In order to avoid reversing the loom, when it runs on without weft, the inventors " apply a catch box and apparatus " or mechanism so arranged as to temporarily disconnect the " lathe or going part of the loom from the different apparatus " which gives motion to the shuttle boxes and the jacquard " engine, and also so connect the shuttle boxes and jacquard " engine or the apparatus by which they are actuated that they " can be turned back simultaneously by hand whilst the going " part of the loom remains stationary."

[Printed, 4*d.* No Drawings.]

A.D. 1862, April 11.—N° 1053.

WHITESMITH, Isaac.—"This invention comprises various " improvements in power looms, more particularly for weaving " ornamental fabrics, although in part applicable for plain " weaving, together with arrangements for winding the weft on " the shuttle pirns on the loom itself, such arrangements including " improved details also applicable to ordinary pirn winding " apparatus. The improvements in weaving mechanism are to " some extents related to the improvements having similar objects " described in the Specification of Letters Patent, granted to " Robert Adam Whytlaw and James Steven, dated 11th De- " cember 1855 (No. 2799), in the Specification of Letters Patent, " granted to Robert Adam Whytlaw and Alexander Mitchell, " dated 24 May 1856 (No. 1246), and in the Specification of " Letters Patent, granted to Isaac Whitesmith and James Steven, " dated 14th June 1860 (No. 1455).

" A first improvement relates to the mechanism for moving the " shifting shuttle box described in the last-mentioned Specification, " and consists in substituting for the studded wheel acted upon " by a hook, a double ratchet wheel acted upon by two hooks, " one turning it in one direction and the other in the opposite.

" On the spindle on which the ratchets are fixed there is a " *pinion in gear with* a rack or a toothed arc, such arc being

" on the end of a lever, connected by a rod to the shuttle box. " With this arrangement an increased number of shuttles may " be used.

"A second improvement relates to shifting shuttle box me- " chanism of the kind described in the Specification secondly " herein-before referred to, and consists partly in making the " fulcrum of the lever acted on by the tappet wheels adjustable, " and fitting it with an elastic cushion. In addition, the hooks " by which the tappet wheels are actuated are centred on levers " pressed against and actuated by a cam on the low shaft of the " loom.

"The hooks are made to act or not by the action of catches " on their opposite ends, the latter acted upon by the jacquard " pattern mechanism.

"A third improvement relates to the varying of the shedding " action, so as to give the power of weaving, say 'plain' and " 'twill' alternately. The treadles are acted upon by antifriction " pulleys, mounted loosely, but in determinate positions, on " spindles carried in a revolving frame." "The pulley spindles " are capable of being shifted longitudinally as regards the axis " of the frame, by which a different arrangement of the pulleys is " brought into acting position, thereby causing a corresponding " change in the shedding action."

"A fourth improvement comprises another arrangement for " varying the shedding action. In it two tappets, fast on a shaft, " carry round by means of studs and arc-shaped slots two other " tappets otherwise loose on the shaft. When turning in one " direction the four tappets produce plain weaving, but on turn- " ing in the opposite direction the slots allow the loose tappets to " change their positions relative to the fast tappets in such a way " as to produce twilling.

"A fifth improvement has for object the production of long " patterns by means of pattern mechanism, such as is described " in the Specification thirdly herein-before referred to.

"Each card is made equivalent to as many cards as it has per- " forations, there being arranged a spindle with a number of stop " pins disposed spirally round it in such a way that as the spindle " is shifted round through a certain angle another pin is brought " opposite the next perforation in order. Or a single stop pin " may be shifted along from perforation to perforation by a screw " action. When all the perforations of a card are dealt with, the

" mechanism causes the card next in order to take its place, and " the operation is repeated.

"A sixth improvement relates to the weft stopper details of " looms having shifting shuttle boxes on both sides, and is " designed to insure these details acting exclusively with reference to the last weft laid, from whichever side it may be. For " this purpose it is necessary that the threads of the other " shuttles be lifted out of the way at the proper period, as their " presence would prevent the absence of the last shot from " occasioning the requisite action of the stopper. A light bent " lever is contrived to lift the threads out of the way in a very " simple manner, being disposed in guides, and being actuated " by a link which in rising first turns over the lever, so as to insert its point under the threads, and then moving the lever " upwards, lifts the threads, and allows the shuttle just being " thrown to pass beneath into its cell. On the link returning " downwards its first action is to turn the bent lever back again " so as to clear the threads.

" A seventh portion of the present invention relates to the " arranging upon the loom of details for winding the weft yarn " off reels or bobbins upon pirns for the shuttle.

" For this purpose two grooved pulleys are formed or fixed " upon the loose pulley of the loom, and a cord from one is made " to drive, for example, two spindles, a cord from the other " driving the 'heart' motion. The driving belt is arranged so " as when driving the loom to have still sufficient hold on the " loose pulley to drive it and the winding details, and the winding can thus continue whether the loom is working or not."

With respect to pirn winding machinery the patentee claims, " The causing of the pirn in winding machinery to run between " a set of conical antifriction rollers; the fitting of the wharve " with a bush, having a part bored out cylindrically; and contriving of the 'heart motion lever' so as to prevent 'play' or " slackness in reversing."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1862, April 15.—N° 1086.

PLATT, John, and CHEETHAM, William.—This "invention " refers to the picking motion of looms, and consists in the adaptation of a *spring* 'buffer' or other such elastic apparatus,

" against which the picking stick bears when it recedes from the
" shuttle."

The patentees also " apply a similar apparatus for receiving the
" blow of the picking stick in its forward motion."

[Printed, 8*d*. Drawing.]

A.D. 1862, April 16.—N° 1099. (* *).

HADWEN, JOHN WILSON.—(*Provisional protection only.*)—
" Improvements in the treatment and application of soft silk
" waste," consisting first " in employing Heilman's or other combing
" machine;" " secondly, in making from the combed silk fibre,
" when spun, a new fabric suitable for umbrellas and parasols;"
" thirdly, in mixing the aforesaid combed fibre with any desired
" proportion of wool or mohair, and spinning it into yarn."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 16.—N° 1103.

COCHRAN, ROBERT, and COCHRAN, ROBERT, junior.—
(*Provisional protection only.*)—" This invention has for object
" the production, in a novel and economical manner, of ornamental
" fabrics of the many colored harness woven kind, such
" as bordered shawls, long shawls or plaids, scarfs, and bandeaus.
" And in practising the invention, according to one modification,
" supposing the article to be produced is a shawl having a self-
" coloured or plain centre with a border, the inner edge of which
" has an ornamental outline projecting unequally into the plain
" centre part, such border is woven separately, and being cut
" along the inner unequal outline is neatly stitched upon a plain
" or self-coloured piece of cloth."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 17.—N° 1120.

HARLING, WILLIAM, TODD, JOHN MATTHEW, and HARLING, THOMAS.—" This invention relates to an improved brake
" and stopping motion, and consists in fixing the frog to a shaft
" so that it may slightly turn or oscillate in a bearing, instead of
" sliding on the loom side as at present. To the shaft to which
" the frog is attached there is a double or two-armed lever, having
" one arm shorter than the other. To the short arm is connected
" one end of the brake rod, the other end of which is curved to

" suit the fly wheel, and mounted with wood or leather in the usual " manner. The top of the long arm of the aforesaid lever acts " upon the stopping handle or setting-on rod, and in consequence of its increased length acts sooner upon the strap than " upon the brake, and the strap is shifted to the loose pulley " before the brake is in contact with the fly wheel. The brake " rod is placed in an inclined position, so that by its own weight " the brake may fall back from the fly wheel when the stop-rod " finger is not acting against the frog, and thereby prevent any " possibility of the brake being in contact with the fly wheel " until required."

[Printed, 8*d*. Drawing.]

A.D. 1862, April 17.—N° 1122.

MURPHY, JAMES, senior. — "This invention of improvements " in looms relates to arrangements for weaving with two shuttles " simultaneously, and is beneficially applicable in producing " various kinds of figured or ornamental fabrics.

" An important part of the improved arrangements consists of " what may be termed a movable or floating race for the uppermost of the two shuttles to run upon and be supported by. " This movable race is a kind of comb, attached to a horizontal " bar fitted to slide up and down in grooves in the lathe swords " or frame. The teeth of the comb project downwards, and are " by preference of metal, their bottom ends being bevilled or " pointed, so as to divide and enter amongst the warp threads " when made to descend. The bottom of the race is formed by " horizontal pieces attached at right angles to the teeth, which " project downwards, the front ends of the horizontal pieces " being also pointed or bevelled. The shedding movements are " arranged to form two sheds simultaneously, one below what " may be termed the middle line for the lower shuttle running " upon the ordinary race, and one above the middle line for the " upper shuttle. As the lathe moves backwards the movable " race descends, and the threads raised to form the top of the " upper shed pass up between the teeth, forming the race sufficiently high for the upper shuttle to pass between them and " the horizontal parts of the teeth forming the bottom of this " race. As the shuttles pass necessarily further from the reed " than in ordinary looms a series of pointed wires may be made " to rise up at the proper period to give the back support to the

" lower shuttle, which it would otherwise have had from the " reed." " The movable race, or a modification of it, may be " combined with what is known as the 'swing frame,' and the " race may be made in sections across the loom, such sections " being contrived to act independently of each other."

[Printed, 10*d*. Drawing.]

A.D. 1862, April 23.—N° 1187.

NEWTON, ALFRED VINCENT.—(*A communication from Halcyon Skinner.*) — This invention relates to improvements upon an invention for which Letters Patent were obtained " bearing date the " 17th day of October 1856 (No. 2434) for improvements in the " manufacture of tufted pile fabrics.

" The first part of the invention relates to an improvement in " the manner of mounting the warps in the loom, and in the " operation of the harness, whereby the tufts are more effectually " secured in the fabric, and a better web or back than can be " effected by the loom described in the Patent of 1856 " (No. 2434)."

" The second part of the invention relates to an improvement " in the mechanism for transferring one by one the frames which " carry the spools on which the tufting yarns are wound of the " various colours required for each range of tufts in the design or " figure to be woven." " This part of the present invention " relates to an improved mechanism for taking the spool frames " from the chains, depressing them to the position required, and " after a range of tufts has been introduced in the warps and cut " off, returning the spool frames to the chains. The spool frames " are severally held in the endless chains by clip springs, which " as they come in contact with the bottom chain wheels are " pressed inwards. The frames, however, are kept from falling " away by means of curved guide plates, which surround the " lower parts of the chains. An opening is, however, formed in " these plates to allow the spool frames severally to drop out as " they are brought opposite those openings. At this moment the " spool frame is without support; it is seized by the clips of a " pair of rocking arms, and carried down to the shed in readiness " to give out a portion of wool to form a row of tufts. When " the lengths of wool are severed the rocking arms carry up the " spool frame and deposit it again in the chains, the progressive " motion of which will carry it forward, and bring round another

" frame ready to be received in like manner by the rocking arms. " The pendent lengths of wool intended to form the tufts are " seized by pairs of nippers and drawn down into the warps. " They then make a slight lateral motion, and carry up the ends " through the warps before the weaving in is effected.

" The third part of the invention relates to an improvement " which may be denominated the combing operation. The functions of this mechanism are to hold the warp properly apart " during the operation of inserting the tufting yarns, and after " they have been cut off, and to rise through the tufts and " comb them out, and thereby prevent them from becoming " tangled."

" The fourth part of the invention relates to an improvement " in the mechanism for cutting off the tufts from the yarns on " the spools." " For cutting off the tufts two blades are used, " one being straight and the other having inclined steps. The " stock of the straight blade slides in rocking arms, and " the stock of the other blade slides in like manner. The edges " of both blades are armed with equidistant points which act as " guides."

" And the last part of the invention relates to an improvement " by which the chafing of the warps experienced in the use of the " loom before referred to is prevented. This is effected by means " of a plate sliding against the front face of the reed, and constructed in two parts, one placed in front and the other behind " the reed, and united at their ends beyond the ends of the " reed."

[Printed, 4*s*. Drawings.]

A.D. 1862, April 24.—N° 1197.

DAVIES, George. — The patentee says :—" My improvements " in the manufacture of mats or matting relate to that class of " mats known as door mats, having a thick pile of fibrous " material standing up on the surface, which pile has hitherto in " the weaving of such mats been made of strands of material " introduced in the direction of the shoot or weft, which while " being passed in the shed is taken up between the warp strands, " and a turn of it taken on a hollow metal bar, on which it is " subsequently cut. According to my invention I make the pile " of strands of material placed parallel with and disposed exactly " as the ordinary warp, disposing one or more strands to form the

" pile between each of the warp threads that forms the backing. " The warp and weft threads are employed as usual to form the " backing or foundation of the matting.

" In manufacturing matting according to my invention I " employ warp beams on which to dispose the warp as in ordinary weaving, but disposing that part of the warp which is to " form the pile on a separate and distinct beam or roller from that " on which the warp to form the backing is placed. In some cases " I dispose the pile warp itself on one, two, or more beams or " rollers." " The finished work is wound upon the breast " beam by hand leverage, and held by a ratchet and pawl, as " usual."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 26.—N° 1237.

LESTER, AARON.—This " invention of improvements in the " manufacture of the fronts or uppers of slippers, shoes, boots, " and gaiters, and of mats, bags, fire-screens, and various other " articles which are usually made of ornamental or berlin needlework, consists in weaving the fabric of which the intended " article is to be made of a pre-arranged pattern or design, depending upon and suitable to the form or shape of the article " intended to be produced. For instance, for the front of a " slipper, shoe, or boot the pattern is to be expressly designed to " suit the form of the article intended to be produced, and this " pattern having been drawn upon the ordinary draught paper is " read off, and the chain of cards prepared in the manner usually " adopted in preparing looms for jacquard weaving. The fabric is " then woven in the piece, with the pattern thereon, in such a " form that when it is made up the article will present the appearance of fine needlework produced by hand."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 29.—N° 1247.

CALEY, JOHN WILLIAM, and CALEY, FREDERICK GOODMAN. —" An improved textile fabric." The textile fabric, " although " more especially intended for window roller blinds, may be " applied to other uses. It is of cotton and manufactured with " a semi-transparent pattern, that is to say, with figures or " designs in gauze or openwork very similar to lace or net."

The "fabric is produced by the gauze or openwork part, having the threads in the warp twisted together according to the requirement of the pattern to be produced, and the plain or ground part by the threads in the warp rising and falling two threads up and one thread down alternately."

[Printed, 6*d.* Drawing.]

A.D. 1862, April 30.—N° 1270.

MERCIER, Achille Tranquille.—(*Provisional protection only.*)—These "improvements in looms apply principally to the following parts :—Firstly, the lifting of the boxes by the cording or tie up by means of squares, communicating by metal rods with other squares, which lift the shuttle boxes. Secondly, metal racks, the teeth or notches of which uphold the boxes at their different heights, by means of cramps or pauls in connection with the cording. Thirdly, notched flats or plates pressed by a spring against the two fingers or branches of a lever tied to the cordage by a cord, which raising the lever, causes the paul to leave the notch of the rack, and permits the box to change its position. Fourthly, a rack provided with two fingers, which finding themselves placed before one or other driver, permits one or other of the shuttles to throw according to the requirements of the design to be produced. This rack is set in motion right or left by a pinion, which tooths into it, and is fixed on a shaft, at the end of which is also fixed a crescent, the two ends of which are fastened by a cord to the lifting wires of the cordage."

[Printed, 10*d.* Drawings.]

A.D. 1862, April 30.—N° 1279.

STAUFEN, Werner.—"A new material to be used in the manufacture of brushes, and also applicable to the purposes for which bristles, horsehair, and human hair are now used." The patentee says, "I take the fibres of the tree known to botanists as the 'arenga saccharifera,' which is chiefly found in India and the Eastern Islands, and I treat them with a hot alkaline solution in order to remove the resinous matter, after which the fibres are dyed, dried, and sorted into lengths and thicknesses." "The coarser fibres are selected to be used in place of bristles, or in combination with bristles, in the manu-

" facture of brushes in the same manner as bristles are now " employed; the smaller fibres are to be used in place of horse- " hair, either by weaving them into seating or curling them as " stuffing, and the finest fibres may be used as a substitute for " human hair for plaits of head dresses, bracelets, chains, and " otherwise."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 1.—N° 1287.

SWALLOW, JAMES, and ALLINSON, JAMES.—This invention relates to carpet fabric " of the character of tweeled Venetian, " in which the warp threads are brought to the surface in pattern " without break of tweel." The inventors proceed as follows:— " Supposing the cloth to be woven with eight treddles, eight " lams, and eight shafts to the gears, then there are sixteen cords " from the treddles to the lams, and eight cords from the lams to " the gears. There are two shuttles, a thick one and a small one, " used alternately.

" The cloth differs from other Venetian cloths, in having a " double float, and in forming complete patterns without break- " ing the tweel, that is, by making all the floats one length, the " pattern is obtained as large again as in other Venetian cloths, " without breaking the tweel or repeating the lash; it also makes " the wave of the cloth double, which is not the case with other " cloths."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 3.—N° 1321.

MELLODEW, JAMES, MELLODEW, THOMAS, and KESSELMEYER, CHARLES WILLIAM. — The patentees say,—" Our " invention refers to a method of making the shed in looms, and " consists in interrupting the motion communicated by the " motive power to a roller or other apparatus, so that it may be " caused to deviate from its course in the one direction or the " other, and so impart an upward or downward motion to the " jacks or heddles. In carrying out this principle of our inven- " tion, we employ a pattern chain acting upon a lever, at the " other end of which is a double inclined plane turning upon a " *centre*, the one or the other of which inclines is presented to a " *roller, which is caused* to travel to and fro by the motive power,

" and which is thus conducted upward or downward, so as to " transmit a corresponding movement to a jack or heddle, and " this arrangement is repeated for as many jacks or heddles as " are required for the fabric to be woven. Another part of our " invention, according to our Provisional Specification, referred " to a method of driving the pattern chain or equivalent apparatus, and by which it might be kept stationary on the com" mencement of turning the loom backward. For this purpose, " we proposed to drive the said chain through the medium of a " pin, which, upon the reversal of the motion, should pass for a " portion of a revolution along a slot, but since the filing of the " said Provisional Specification, we have found that the said " arrangement was not new, and consequently lay no claim " thereto."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1862, May 3.—N° 1323.

HEYWORTH, JOHN.—" Improvements in looms for weaving." The patentee says,—" My invention consists in causing the con" tinued motion of the loom to be dependent upon the shuttle " having struck the ' check strap ' or straps. For this purpose " I connect the check strap to an arm, capable of being moved " out of the way of the ' frog ' when the said strap is struck by " the shuttle, but should the shuttle become ' trapped,' then the " check strap not being acted upon, allows the said arm to remain " in a line with the ' frog,' so that the motion of the loom is " arrested."

[Printed, 8*d*. Drawing.]

A.D. 1862, May 6.—N° 1348.

CLARKE, JOHN, and RICHMOND, JOHN.—This invention " consists in weaving textile fabrics, such as plain and fancy " tweeds, doeskins, merinos, silk, satins, sarcenettes, ribbons, " scarfs, broad silks, broadcloth, shawls, handkerchiefs, and the " like, in the following manner:"—There is attached " to each " leash cord a number or series of loops and pattern cords, by " which the patterns may be varied. The invention may be used " in connection with the jacquard machine, satin jacks, or any " other machine now in use to make any kind or style of pattern, " merely by the attachment or detachment of the pattern cords

" and loops which are placed above the compass board in the " present loom. The levers are raised in succession by means of " treadles. The same set of cords will make any pattern that " may be desired, instead of requiring new cords, as in the jac" quard machine."

[Printed, 1s. Drawings.]

A.D. 1862, May 9.—N° 1394.

FAWCETT, Thomas, junior.—This "invention consists, firstly, " in improvements in shirt fronts and other plaited fabrics by " producing, instead of the rough uneven fabrics hitherto pro" duced for shirt fronts and other plaited articles of the same " character, a smooth and even fabric, containing, however, the " same quantity of warps in the parts intended to be exhibited " when in wear."

"Secondly, the mode of and mechanism for manufacturing " plaited fabrics." "Two beams of warp are used, the under one, " however, containing a very small proportion to the upper one," " instead of the old plan of using one-half the amount of warp " of the upper beam, the warp of the under beam being nowhere " woven into the cloth except under the plaits. Where the cloth " is intended to be exhibited when in wear, the under warp is left " out and clipped off when the web comes out of the loom. Five " treddles are adopted, two thereof being used for fastening the " warps together, two for making the plain cloth for the plaits or " folds, or otherwise, and one for sewing or making the stitch " which is to be exhibited in wear."

Printed, 4d. No Drawings.]

A.D. 1862, May 10.—N° 1403.

CLARK, William. — (*A communication from Jean Louis Abeilhou.*)—"The application of a vegetable fibre alone or in " combination with other matters in the manufacture of felted and " other fabrics, also as a substitute for flock or powdered wool, " and as a material for padding or stuffing, and for other useful " purposes." The fibre proposed to be used is the down of plants, technically termed 'typha,' and commonly known as *reeds or bulrushes.* "The down of the typha may not only " *be made into felt,* but it may also be successfully employed in

" weaving, by mixing it with silk, wool, cotton, flax, China grass, " or other fibre."

[Printed, 4*d.* No Drawings.]

A.D. 1862, May 10.—N° 1406.

COOKE, JOHN THOMAS.—These improvements relate to battens used in weaving. The patentee says :—" My improvements consist of a new arrangement of driving planks for carrying the " shuttles from side to side of their work, as hereafter described. " I use two driving planks or bars, which are fitted with pegs in " the ordinary way; one of the driving planks is sufficiently long " to allow of a block being fixed on each end so as to allow the " other plank just to fit in between them, so that neither plank " has any lateral motion apart from or independent of the other; " or on one of the planks may be fixed a stud to work in a slot " in the other plank sufficiently deep to allow of the rise and fall " of each plank. The object of this arrangement is to secure the " planks together so that they both may travel the whole distance " of the space and race, the motion being arranged in such manner " as to allow them to do so, instead of one driving plank taking " the shuttle half its distance, and then standing still while the " other plank takes it the other half. The motion of my driving " planks is cut and arranged in such manner that the driving " plank in work carries the shuttle at work half its distance, and " then falls from the shuttle sufficiently low to allow the peg to " run under the piece or warp, but keeps travelling with the other " plank at work, which rises into the shuttle at the same time the " other is falling from it; the pegs are always either in the " shuttles, or just under the holes in which they work.

" My planks never stand in the middle, but traverse the whole " distance from side to side with the shuttle, and thus prevent " the jar and sudden motion of leaving one plank or bar at half " the distance, and taking it up again in the return course. My " invention is applicable to one or more tiers of shuttles."

[Printed, 8*d.* Drawing.]

A.D. 1862, May 14.—N° 1452.

TOLHAUSEN, FREDERICK.—(*A communication from Antoine Denis.*)—(*Provisional protection only.*)—The inventor says:—

" These improvements relate to the manufacture of double-faced " velvets, that is, ribbons and other fabrics having a velvet pile " on both sides. The loom I use for my double-faced velvets " resembles that now in use for the said fabrics, but I arrange it " in such manner that instead of there being only two ground " warps or pieces one above the other, there are three ground " warps one above the other. In the common process one pile or " terry warp is divided amongst the two warps by means of one " knife, but by this improved process I use two pile warps and " two knives. In this manner I obtain three textures of fabric " one above the other, and the pile being cut by two knives, the " result will be a double-faced velvet fabric in the middle, and " one single-faced velvet above and beneath. Three shuttles are " used in this improved loom instead of two as in the common " loom, and in order to overcome the difficulty that would have " to be experienced in picking these shuttles simultaneously, I " provide the two ground warp heddles or healds with three eyes " each, and the pile heddle with two eyes, a proper shed being " thus ensured for the easy passage of the shuttles."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 16.—N° 1479.

RAILTON, JOHN, and RAILTON, THOMAS. — (*Provisional protection only*.)—" Improvements in warping machines." The object of the improvements is to stop the machine when a thread breaks. " Each warp thread is taken over a balanced lever, and " these levers are hinged to a cross shaft, and they are guided by " the dents of two open reeds; these parts are mounted on a " vibrating frame, to which a link connected to the usual spring " starting lever is jointed; under the weighted end of the " balanced levers a rocking bar is moved to and fro by the warp " beam or other convenient part of the machine. When the warp " threads are all passing forward to the warp beam the balanced " levers are held clear of the rocking bar, but the moment a " thread breaks, the balanced lever over which it was passing " drops, and the rocking bar, coming in contact with it, moves " the vibrating frame, thereby liberating the spring starting lever " from its retaining catch, and moving the driving strap from " the fast to the loose pulley."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 17.—Nº 1501.

BROADLEY, James.—" Improvements in means or apparatus " employed in weaving." "The improvements relate, first, to a " combination of means in connection with the jacquard apparatus for governing the times and order of motion of shifting " shuttle boxes of looms." The patentee applies " the jacquard " barrel upon an axis carried by a bar or rod operated directly " by an eccentric, of which such bar or rod forms the rim. The " eccentric is applied on the tappet or other suitable shaft to give " the desired up-and-down motion to the barrel in order to its " being turned by a click or driver, and to its operating levers or " rods, which by means of rods are connected to hooked levers " adapted to act on one or the other of two of the ends of a " T lever, the third end of which is by a double-hooked rod " capable of operating the series of rotary shuttle boxes to move " them in either direction.

" Secondly, the improvements relate to means of arranging and " operating parts for producign gauze weaving and changes from " gauze to other weaving. The pulley on the lever operating the " heddle or harness motion is formed with two more parts or surfaces, either of which is adapted to be operated by cams or tappets, and the pulley has two studs applied to its face on opposite sides of its centre, one or other of which studs rests " against a projection from a bar carried by the lever already " referred to, and which bar is capable of being lifted by jacquard " or pattern surface to release one or the other of the pins so as " to effect a change from gauze to other weaving. There is a " double slay or comb through which the warps pass, such slay " or comb having a long dent and a short dent. The short dent " is placed in front or between the space of the long dent. A " slay or comb moves the reverse way to the larger slay or comb, " and has an endway motion given to it, causing the warp thread " to move up one side of the other blade, and then up the other " side as required. The axes of the levers carrying these slays or " combs are connected together by a pair of toothed wheels."

[Printed, 10*d*. Drawing.]

A.D. 1862, May 19.—Nº 1513.

PICKSTONE, William, and MELLODEW, Thomas.—(*Provisional protection only.*)—" This invention has for its object an "improved fabric in the nature of a cord or corduroy." The inventors employ "as the pile weft a silken yarn produced from "what is known as silk waste."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 23.—N° 1555.

BLACKLIDGE, ROBERT.—(*Provisional protection only.*)— "Improvements in the preparation of materials for sizing, "dressing, or finishing warps, yarns, textile fabrics, or paper, and "also for thickening colours."

The inventor says:—"This invention consists in treating flour "of wheat or other cereal grain, rice, sago, or other amylaceous "substance or substances, with diastase for the purpose of pro"curing a gummy matter, with which I incorporate lapis colimi"naris, terra alba, and alumina to any required extent for the "purpose of obtaining a compound suitable for sizing or dressing "warps, yarns, textile fabrics, or paper, and also for thickening "colours."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 23.—N° 1556.

DE BERGUE, CHARLES.—(*Provisional protection only.*)—"Im"provements in machinery or apparatus for the manufacture of "metal reeds for weaving."

The inventor, after describing the ordinary machine for making reeds, goes on to say:—"My invention has reference to regu"lating the speed (at the starting and stopping) of the winding "drums or reels; to the treatment of the wire while passing from "one reel to another, including improvements in the tools or "apparatus for filing, planing, gouging, polishing, or otherwise "treating the wire; and to the construction and working of the "bobbins and fliers for carrying the bands or binders to be "used in the 'setting' machine and of the driver or 'beater-up,' "to be used in the said machine."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 23.—N° 1560.

MOULINE, EUGÈNE.—"This invention has for its object, "*improvements in* apparatus used in giving the requisite to-and-

" fro motion to shuttles used in weaving." The "improvements " consist, first, in replacing the electric magnet, which draws the " shuttle in looms in which magnetism is employed, by an " ordinary magnet.

"Secondly, in the manner of arranging the magnet, so as to " act on the shuttle.

"And, thirdly, in the construction of the shuttle.

"It is of importance that the two ends of the magnet should " be diamond-shaped, or terminate in points distant from one " another equal to the distance the small wheels on the shuttle " are apart, in order to apply the magnetic action to them with " the greatest possible intensity."

The magnet is attached to a travelling carriage, having wheels. The carriage is drawn by an endless chain, moved always in the same direction. On the carriage there is a groove, having in it a bolt, "which penetrates into a link of the chain first above and " then below, so that the carriage shall be drawn first one way " and then the other." "The shuttle runs on a thin copper rod, " held in a frame capable of being raised or lowered as required, " and the magnet projects beyond the frame, so that it shall " always be in contact with the copper rod, and constantly " maintain the magnetic action."

[Printed, 8*d.* Drawing.]

A.D. 1862, May 26.—N° 1565. (* *).

HARRISON, JOHN, and PARKINSON, ROBERT.—"Improve- " ments in the manufacture of rollers for preparing, spinning, " doubling, sizing, winding, warping, and weaving."

This invention "consists in making the rollers or drums of the " various machines employed in preparing, spinning, doubling, " sizing, winding, warping, and weaving, of sheet iron coated " with lead, or a combination of lead with other metals or materials, " which sheet iron is known to the trade as the 'patent coated " 'sheet iron,' instead of making such rollers of tinned sheet iron, " or brass, or other metal, or of wood." Sheets or plates of iron coated with lead or tin, or alloys of lead or tin, in the manner described in the Specification of Banks and Morgan, A.D. 1861, No. 317, of the requisite length or width, are bent in the ordinary manner, and secured to discs or flanges to form rollers.

[*Printed, 4d. No Drawings.*]

A.D. 1862, May 26.—N° 1566.

HARRISON, William, HARRISON, John, ODDIE, John, and PARKINSON, William.—"Improvements in machinery " for winding, sizing, and weaving,"

The "improvement in machinery for sizing consists in sup- " porting the end of the cone shaft in a swivel bearing acted " upon by a lever for throwing the pinion on the cone shaft, in or " out of gear with the wheel to be driven."

The "improvements in machinery for weaving consist, " first, in applying a regulating screw to the bearing of the " tappet shaft for regulating the depth of gear of the wheels.

Secondly, in connecting the picking tappet to the tappet shaft " by means of a bush fixed to the shaft, on which bush and on " the picking tappet teeth are cast; by this means the picking " tappet is securely held, and its position can be easily regulated.

"Thirdly, in applying a catch to the incline which passes " through a slot in the breast beam and serves as a stop to the " lever supporting the weft fork, for applying the break to the " fly wheel when the weft motion acts."

[Printed, 10*d*. Drawing.]

A.D. 1862, May 29.—N° 1615.

LEE, James Denby, and CRABTREE, James. — (*Provisional protection only*.)—"This invention relates to looms for weaving " fancy woollens, and the improvements consist,—

"Firstly, in working the 'shafts' or heddles by the ordinary " jack rods in combination with hooked catches and grife levers " or knives operated by tappets fixed on the low shaft, the said " catches being brought into contact with the said levers by " means of peg lags or other suitable indicating apparatus, aided " by springs, by which we obtain a double lift.

"Secondly, in working or operating the picking levers by " pinions and racks in combination with double-nosed tappets " and moveable friction pullies, which are brought into or out of " contact with the said noses, as required, by levers and rods " actuated by a changeable chain of tappets."

"Thirdly, a means of stopping the loom instantly where a " shuttle remains in the shed, which is effected by having fingers " so placed as to be operated by the loose reed, and brought into " contact with a lever, which acts upon the strap guide, and also

" against stops which prevent the crank shaft from passing the " centres."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 29.—N° 1620.

CLARK, William.—(*A communication from Jean Henry Cazal.*) —"An improved method of throwing the shuttles of looms." " This invention relates to an improved method of throwing the " shuttle a given distance at a uniform and regular speed by " the application of the attractive force of the magnet or electro- " magnet as a motor; thus a shuttle is furnished with an iron " armature, acted on by a magnet or electro-magnet placed in " proximity to it, and having a suitable motion imparted to " it at a given speed, which will be thence transmitted to the " shuttle."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 2.—N° 1655.

KING, James, and PARTINGTON, John.—" Certain improve- " ments in looms for weaving." " This invention relates to the " letting-off motion, and it consists in an improved combination " of parts for unwinding the warp off the warp beam, and keeping " it at one uniform tension. The warp on leaving the warp " beam is taken over a roller and under a second roller, which is " fixed to a rod and forms a vibrator; to the rod is fixed a lever " connected by a link to a weighted lever, one arm of which " passes under a lever actuated by the cross shaft of the lay " swords; this lever is furnished in the usual manner with a " catch taking into a ratchet wheel fixed on a shaft, which has " a worm taking into a wheel on the warp beam. By this " arrangement of parts, as the cloth is being woven a sufficient " quantity of warp is let off from the warp beam as it is taken " up by the cloth beam, and the warp is thus kept at a uniform " tension."

[Printed, 8*d*. Drawing.]

A.D. 1862, June 6.—N° 1706.

DARLINSON, George.—(*Provisional protection only.*)—" Im- " provements in the manufacture of ribbons." " In addition to " warp of the ordinary kind, which is used and woven together

" in the usual way," the inventor uses as part of the warp, " a " certain quantity of chenille or narrow velvet, and the velvet " may be either plain-edged or of the kind usually known as " stamped."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 10.—Nº 1726.

KINLOCK, John, and EDMESTON, Thomas.—" Improvements in looms for weaving." This " invention relates to an " improved mode of regulating the yarn beam so as to give the " necessary equal tension to the yarn as the beam varies in " diameter, and, consists of fixing a cam or eccentric on the " crank shaft of the loom. The cam or eccentric acts upon an " arm or lever connected by a rod to a sliding stud, which slides " downwards on a quadrant lever as the yarn is taken off the " beam in the process of weaving. The said quadrant lever is a " portion of a clip or strap passing round a pulley, and is " tightened so as to maintain the requisite friction by means of a " screw passing through the ends of the clip, the pulley being " secured on the end of a small shaft carried by a fixing on the " loom side instead of the original fixing for carrying the yarn " beam. The end of the shaft is hollow, into which the pivot of " the yarn beam is placed, and is carried by it. At the end of " the beam is fixed a flange, in the outer surface of which is cut " two slots or holes, a similar plate or flange being fixed on the " small shaft with two studs extending into the slots or holes, " thereby securing the yarn beam to the small shaft, and also " enabling it to be easily taken out and replaced. The small " shaft is caused to oscillate by means of the cam or eccentric " fixed on the crank shaft through the aforesaid clip, the cam or " eccentric being fixed so as to release the yarn when the shed is " open, and close it when the shed is closing. The sliding stud " is attached to a lever by a rod passing down at the end of the " clip, which lever is carried by a fixing secured to the clip; " the other end of the lever is pressing against the yarn beam by " the preponderance of the rod and sliding stud, and consequently " moves downward as the yarn beam diminishes in diameter, " thereby increasing the stroke or oscillation of the beam as " required. The lever being attached to the clip, there is no " friction at the point where the lever presses on the beam, as all

" parts oscillate from the same centre. The yarn is also allowed " to pass along through the clip by the pulley slipping round; " and the clip is a more regular friction than the present plan " of weights and ropes."

[Printed, 10*d*. Drawing.]

A.D. 1862, June 11.—N° 1739.

CROOK, William.—"Improvements in looms for weaving." The patentee says,—"This invention consists, first, in an improved " indexing apparatus or shedding motion. On the tappet shaft " I fix one or two internal tappets, which give a vibrating motion " to a corresponding number of treadles and compound levers, " each of which is composed of two parts, working on pins at " the back and front of the loom, and held together at about " the middle by a pin working in a slot. The bowl which works " in the groove of the tappet is between the pin and fulcrum of " one of the parts, and thereby gives a larger traverse to its end " than the throw of the tappet, which traverse is transmitted to " the other part to any desired extent by shifting the pin in the " slots of the two parts, by which arrangement any depth of shed " can be obtained by small internal tappets. The top of each " heald is connected to a slide and spring, and the bottom to " two slides, all guided in suitable grids. The bottom slides are " in such positions that their tops can be brought under the " treadles when desired, and cause the healds to descend with " the downward movement of the treadles, their upward motion " being obtained by the springs at the top; the healds and bottom slides are kept steady by having their connecting cords in " contact with two small rollers. The bottom slides, on account " of their suspended position, have no tendency to get under the " treadles, and therefore require to be placed according to the " pattern. For this purpose I employ a vibrating plate, put in " motion by a lever communicating with an eccentric or tappet on " the tappet shaft. On each pair of bottom slides there are " guides having notches at their under sides, and when the " notches are upon the vibrating plate, the slides are placed " under the treadles; but when the guide and notches are lifted " up the slides resume their natural position.

"In order to regulate the action of the guides and notches I " employ L levers, each having upon its short arm a needle, corresponding with holes and spaces upon a pattern cylinder or cards either on one or both sides of the slides, so that when the needle comes in contact with the card or cylinder, the long arm of the **L** lever shall be raised, and raise the guide and notch above the vibrating plate, and prevent its acting upon the bottom slides; but when the needle enters a hole in the card or cylinder, the long arm of the lever is not raised, and therefore the notch in the guide is on the vibrating plate, which thereby moves the bottom slides alternately under the treadles. The to-and-fro motion of the **L** levers is obtained by means of the lever which works the vibrating plate, and I give an intermittant revolving motion to the pattern cylinder or drum by means of a worm having in it threads and spaces of an irregular cam shape, which improved worm is suitable for giving intermittent revolving motion to the pattern cylinders employed in all descriptions of indexing apparatus."

"Secondly, in an improved shuttle or drop-box motion, in order to lift and let fall the drop-box having two or more shuttles, I simply require two extra bottom slides acted upon by the treadle, and having their motions regulated by the pattern cylinder or cords, precisely in the same manner as that described for working the healds.

"Thirdly, in an improved mode of working the regulating rod, I stop the taking up motion when desired for the purpose of making thick places in the cloth by raising the catch of the ratchet wheel by means of two bottom slides, connected at the top to a lever communicating with the regulating rod, the said slides being worked in the same manner as the others before described.

"Fourthly, in an improved self-acting temple. The cloth is stretched or held at its proper width by two sets of pins on each side, one set entering the top and the other the bottom of the cloth alternately. Each set of pins is connected to a rack, and the two racks are geared into a pinion, so that when one rack and pins move one way, the other rack and pins move the reverse way. The two sets of pins are alternately raised and depressed by means of cams connected to arms or levers, which are turned backwards and forwards by projections alternately acted upon by a pin on the slay or lathe."

[Printed, 10d. Drawing.]

A.D. 1862, June 11.—N° 1740.

CRICHTON, David, DONBAVAND, William, and CRICHTON, Duncan.—(*Provisional protection only.*)—" Improvements " in looms for weaving." This invention " consists of improve- " ments on and in Crichton and Cathcart's invention for which " Letters Patent were granted, dated the 17th day of September, " 1856, N° 2174." The improvements are described applied to the taking-up motion of a loom. To one of the lay swords is fixed a " propeller " actuating a ratchet wheel and cam, which through levers and links, communicate motion to a pin working in the slot of a slotted lever. This slotted lever actuates two catches working into two ratchet wheels, which by a train of wheels give motion to the cloth beam. The pin in the slotted lever is connected to a roller, which bears against the cloth beam; and as the cloth beam increases in size the pin is lowered in the slot of the slotted lever, and threby gives a constantly decreasing speed to the ratchet wheels and consequently to the cloth beam.

[Printed, 8*d*. Drawing.]

A.D. 1862, June 14.—N° 1772.

JOHNSON, John Henry.—(*A communication from Michael Bouteille.*)—(*Provisional protection only.*)—" This invention relates " to a peculiar construction and arrangement of certain parts of " jacquard machines, and to a mode of operating the same, " whereby a considerable economy in the number of cards is " effected by causing each card to serve four strokes of the " cylinder or prism in lieu of only one, as is usually the case.

" According to this invention the cylinder or prism is so built " up or constructed as to admit of that portion which carries the " card pins or studs being slid laterally by means of a rod or " spindle, acted upon by an eccentric or otherwise, and inserted " into one end of the cylinder, suitable springs being employed " inside the cylinder for the purpose of returning the pins to " their places again when the action of the rod ceases. The sur- " faces of the cylinder or prism are provided with a series of " grooves or channels made transversely across each face in sub- " stitution for the perforations hitherto employed. The cards " have each four different sets of holes punched therein, and after " the first stroke of the cylinder the ends of the needles are " slightly elevated, so as to bring them opposite a second set of

" perforations for the second stroke. Previous to the third stroke " the card is moved longitudinally along the cylinder or prism, " as before described, which has the effect of bringing the third " set of perforations opposite the needles, and the fourth set of " perforations are brought into action by lowering the needles " again to their original position before making the last stroke, " after which the cylinder is rotated one quarter turn so as to " bring a fresh card into action."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 19.—Nº 1808.

STANSFIELD, Richard, and DODGEON, John.—(*Letters Patent void for want of Final Specification.*)—"Improvements in " looms for weaving." The inventors say,—"This invention " consists, first, in an improved stopping motion for stopping the " loom when the shuttle is not in the box. We employ in each " shuttle box that description of swell which is acted upon by " the top of the shuttle, but bring the end of the swell to the " back of the box, so that when the swell is held up by the shuttle its end shall come in contact with a lever on the stop rod " and hold up the stop rod finger, but when the shuttle is not in " the box, the end of the swell shall not be in contact with the " lever, and thereby allow the stop rod finger to be depressed and " come in contact with the frog and stop the loom. Secondly, " in an improved arrangement of buffer or check strap. We coil " one end of the strap round a concentric or eccentric boss fixed " to the slay or lathe instead of fixing to it the end of the strap " itself." "And, thirdly, in an improved mode of stopping the " loom when the weft thread breaks, or when there is no weft. " We place the weft fork on the opposite side to the setting-on rod, " and instead of placing the hammer on a stud we fix it to a " shaft or tube having upon it a lever which is acted upon by the " absence of the weft, and also at the other end another lever, " which operates upon the setting-on rod or spring handle, and " liberates the brake so as to stop the loom at the breakage or " absence of the first pick of weft."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 21.—Nº 1832.

DAVENPORT, Henry, and DAVENPORT, John.—These " improvements relate to the manufacture of loom healds or

" harness, in which in place of the 'mails' 'nooses' are used, " and the improvements have for their object to form knots to " such 'nooses' by the working of the mechanism employed in the " manufacture of such healds or harness, in place of such knots " being produced by hand." "The thread or yarns of which the " healds are produced are conducted from bobbins lengthwise by " the sides and through the hollow end of an instrument, upon " which the 'nooses' are formed, and which serves to regulate " their size. The yarns having passed out from this regulating " instrument are acted upon by points or openers, and then by " other points in pairs, which draw the yarn on each side of the " 'flys' or 'lappers' for lapping on to the rig bands. Other instru" ments or forks then take back the yarns passing through the " regulator, when pointers on each side take back such yarns, " and from one of them fingers take one of the threads or yarns, " and lap it over the other thread round the end of the regulator, " where it is held by holders whilst the 'openers' come into " operation again. A forked slide on the fingers acts as a pusher " to push the thread therein to the point of the fingers for the " lapping in the proper place on the end of the regulator. A " stop on the hollow end of the regulator prevents the thread " being lapped on to from being drawn out of place by the lap" ping of the other thread.

" Varnish or other suitable adhesive matter applied to the " knots will hold them in place when finished."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, June 21.—N° 1833.

ANDERTON, John.—"Certain improvements applied to the " tape-leg or sizing machine, and in the apparatus employed " therein, for the purpose of improving the yarn." Between the reed and the yarn beam the patentee places "a box or trough " containing water or other liquid, and brushes, rollers, or jets " for supplying moisture to the yarn in its passage to the yarn " beam."

[Printed, 6*d*. Drawing.]

A.D. 1862, June 21.—N° 1840.

LAWSON, John.—The patentee says,—"This invention has " for its object improvements in the manufacture of carpets and

" other piled fabrics. For this purpose, in producing a piled " figured fabric, I employ a ground warp distended, as is usual, " between a warp beam and another beam or roller, on which the " fabric, when finished, is wound. This warp is arranged, by " preference, in a vertical position, and is threaded through harness, by which it can be divided into sheds for the passage of " a shuttle. For the pile yarn, I employ as many beams as there " are rows in the pattern, and I wind on each of these beams " colored yarns, the colors on each beam being arranged to " succeed each other in the same order as they do in the row of " the pattern to which the beam corresponds. Each of the pile " yarn beams has attached to it a row of needles, and each pile " yarn is threaded through the eye of a corresponding needle, a " short length of the yarn hanging down below the eye of the " needle. When, in the process of working, it is desired to tie " the pile yarn into the fabric, and produce with it a row of pile " tufts, corresponding with one row or line of the pattern, the " pile yarn beam corresponding with this row or line is brought " forward, and its needles are caused to pass through the warp, " carrying the ends of their pile yarns with them sufficiently far " to be clear of the vertical warp; a shoot of weft is then thrown " in, and the needles having moved back out of the way, the weft " is beaten up upon the pile yarn, which has been placed through " the ground warp in the manner above described. Then the " needles of the same pile yarn beam are again passed through " the ground warp, carrying loops of the pile yarn with them, " and a pile wire is entered through these loops. Afterward " another shoot of weft is thrown in, which, when the needles are " withdrawn out of the way, is beaten up. A suitable cutting " apparatus then divides the loops of pile yarn over the wire, and " the pile beam, in receding, draws out the loose ends of pile " yarn, leaving the loops in the fabric. The tufts to form the " next row of the pattern are then similarly produced by another " pile beam, and so on."

[Printed, 1s. Drawings.]

A.D. 1862, June 23.—N° 1847. (* *)

BARR, WILLIAM. — " An improved manufacture of raised or " brocaded fabrics, woven in cotton or flax, either alone or in " combination with wool."

This invention consists in making raised or brocaded fabrics, such as are or may be employed for under garments, collars, trimmings, and other like uses, and which require to be formed of a cotton, linen, cambric, muslin, or other suitable material, or of any or all of such materials in combination with wool, by weaving the same in a jacquard loom, forming the pattern or brocade "from " the weft." A jacquard loom is employed "with either single, " double, or more battens, according to the pattern or width of " fabric required;" the warp being of cotton or flax, according to the material which he wishes to manufacture, and the weft from which the pattern is formed being in some instances cotton, in others flax, and in others wool.

[Printed, 4*d.* No Drawings.]

A.D. 1862, June 26.—N° 1877.

COQUATRIX, JEAN BENJAMIN.—"Improvements in weaving " carpets, tapestry, and similar fabrics, and in apparatus for the " same." The patentee says:—"This improvement, which forms " the essential feature of my invention, is so simple that it can " neither be improved nor modified, and consists in passing the " warp threads through two reeds fixed opposite each other in " the batten of the loom. By using two reeds instead of one as " usual in weaving all kinds of fabrics, I am enabled to use a " much larger number of threads, and also of producing by an " arrangement of the warp a tapestry stitch which has hitherto " only been effected by hand. The stitch of which my improved " carpets are made is that termed 'Gobelin' stitch or fine tapestry " done with a needle."

[Printed, 10*d.* Drawing.]

A.D. 1862, June 27.—N° 1886.

LORD, JOSIAH, and BROWN, JOHN.—(*Letters Patent void for want of Final Specification.*)—This invention relates to apparatus for stopping a power loom when the shuttle does not enter the box. Upon the ordinary stop rod is fixed "a vertical rod pro- " jecting downwards and forming a bell-crank lever with the " 'stop rod tongue,' and upon this rod a spring is fixed, which si " acted upon by a stud on the crank arm at each 'beat-up,' also " on the rod, and beneath this spring, a projecting finger is " arranged so as to come under a bowl on the framing, for the

" in the usual way," the inventor uses as part of the warp, " a " certain quantity of chenille or narrow velvet, and the velvet " may be either plain-edged or of the kind usually known as " stamped."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 10.—N° 1726.

KINLOCK, JOHN, and EDMESTON, THOMAS.—" Improvements in looms for weaving." This " invention relates to an " improved mode of regulating the yarn beam so as to give the " necessary equal tension to the yarn as the beam varies in " diameter, and, consists of fixing a cam or eccentric on the " crank shaft of the loom. The cam or eccentric acts upon an " arm or lever connected by a rod to a sliding stud, which slides " downwards on a quadrant lever as the yarn is taken off the " beam in the process of weaving. The said quadrant lever is a " portion of a clip or strap passing round a pulley, and is " tightened so as to maintain the requisite friction by means of a " screw passing through the ends of the clip, the pulley being " secured on the end of a small shaft carried by a fixing on the " loom side instead of the original fixing for carrying the yarn " beam. The end of the shaft is hollow, into which the pivot of " the yarn beam is placed, and is carried by it. At the end of " the beam is fixed a flange, in the outer surface of which is cut " two slots or holes, a similar plate or flange being fixed on the " small shaft with two studs extending into the slots or holes, " thereby securing the yarn beam to the small shaft, and also " enabling it to be easily taken out and replaced. The small " shaft is caused to oscillate by means of the cam or eccentric " fixed on the crank shaft through the aforesaid clip, the cam or " eccentric being fixed so as to release the yarn when the shed is " open, and close it when the shed is closing. The sliding stud " is attached to a lever by a rod passing down at the end of the " clip, which lever is carried by a fixing secured to the clip; " the other end of the lever is pressing against the yarn beam by " the preponderance of the rod and sliding stud, and consequently " moves downward as the yarn beam diminishes in diameter, " thereby increasing the stroke or oscillation of the beam as " required. The lever being attached to the clip, there is no " *friction at the point* where the lever presses on the beam, as all

" parts oscillate from the same centre. The yarn is also allowed " to pass along through the clip by the pulley slipping round; " and the clip is a more regular friction than the present plan " of weights and ropes."

[Printed, 10*d.* Drawing.]

A.D. 1862, June 11.—N° 1739.

CROOK, WILLIAM.—"Improvements in looms for weaving." The patentee says,—"This invention consists, first, in an improved " indexing apparatus or shedding motion. On the tappet shaft " I fix one or two internal tappets, which give a vibrating motion " to a corresponding number of treadles and compound levers, " each of which is composed of two parts, working on pins at " the back and front of the loom, and held together at about " the middle by a pin working in a slot. The bowl which works " in the groove of the tappet is between the pin and fulcrum of " one of the parts, and thereby gives a larger traverse to its end " than the throw of the tappet, which traverse is transmitted to " the other part to any desired extent by shifting the pin in the " slots of the two parts, by which arrangement any depth of shed " can be obtained by small internal tappets. The top of each " heald is connected to a slide and spring, and the bottom to " two slides, all guided in suitable grids. The bottom slides are " in such positions that their tops can be brought under the " treadles when desired, and cause the healds to descend with " the downward movement of the treadles, their upward motion " being obtained by the springs at the top; the healds and bottom slides are kept steady by having their connecting cords in " contact with two small rollers. The bottom slides, on account " of their suspended position, have no tendency to get under the " treadles, and therefore require to be placed according to the " pattern. For this purpose I employ a vibrating plate, put in " motion by a lever communicating with an eccentric or tappet on " the tappet shaft. On each pair of bottom slides there are " guides having notches at their under sides, and when the " notches are upon the vibrating plate, the slides are placed " under the treadles; but when the guide and notches are lifted " up the slides resume their natural position.

" In order to regulate the action of the guides and notches I " employ L levers, each having upon its short arm a needle, cor-

" responding with holes and spaces upon a pattern cylinder or
" cards either on one or both sides of the slides, so that when
" the needle comes in contact with the card or cylinder, the long
" arm of the L lever shall be raised, and raise the guide and
" notch above the vibrating plate, and prevent its acting upon
" the bottom slides; but when the needle enters a hole in the
" card or cylinder, the long arm of the lever is not raised, and
" therefore the notch in the guide is on the vibrating plate, which
" thereby moves the bottom slides alternately under the treadles.
" The to-and-fro motion of the L levers is obtained by means of
" the lever which works the vibrating plate, and I give an inter-
" mittant revolving motion to the pattern cylinder or drum by
" means of a worm having in it threads and spaces of an irregular
" cam shape, which improved worm is suitable for giving inter-
" mittent revolving motion to the pattern cylinders employed in
" all descriptions of indexing apparatus."

"Secondly, in an improved shuttle or drop-box motion, in
" order to lift and let fall the drop-box having two or more
" shuttles, I simply require two extra bottom slides acted upon
" by the treadle, and having their motions regulated by the pattern
" cylinder or cords, precisely in the same manner as that described
" for working the healds.

"Thirdly, in an improved mode of working the regulating rod,
" I stop the taking up motion when desired for the purpose of
" making thick places in the cloth by raising the catch of the
" ratchet wheel by means of two bottom slides, connected at the
" top to a lever communicating with the regulating rod, the said
" slides being worked in the same manner as the others before
" described.

"Fourthly, in an improved self-acting temple. The cloth is
" stretched or held at its proper width by two sets of pins on
" each side, one set entering the top and the other the bottom of
" the cloth alternately. Each set of pins is connected to a rack,
" and the two racks are geared into a pinion, so that when one
" rack and pins move one way, the other rack and pins move the
" reverse way. The two sets of pins are alternately raised and
" depressed by means of cams connected to arms or levers, which
" are turned backwards and forwards by projections alternately
" acted upon by a pin on the slay or lathe."

[Printed, 10*d*. Drawing.]

A.D. 1862, June 11.—N° 1740.

CRICHTON, David, DONBAVAND, William, and CRICHTON, Duncan.—(*Provisional protection only.*)—" Improvements " in looms for weaving." This invention " consists of improve-" ments on and in Crichton and Cathcart's invention for which " Letters Patent were granted, dated the 17th day of September, " 1856, N° 2174." The improvements are described applied to the taking-up motion of a loom. To one of the lay swords is fixed a "propeller" actuating a ratchet wheel and cam, which through levers and links, communicate motion to a pin working in the slot of a slotted lever. This slotted lever actuates two catches working into two ratchet wheels, which by a train of wheels give motion to the cloth beam. The pin in the slotted lever is connected to a roller, which bears against the cloth beam; and as the cloth beam increases in size the pin is lowered in the slot of the slotted lever, and threby gives a constantly decreasing speed to the ratchet wheels and consequently to the cloth beam.

[Printed, 8*d.* Drawing.]

A.D. 1862, June 14.—N° 1772.

JOHNSON, John Henry.—(*A communication from Michael Bouteille.*)—(*Provisional protection only.*)—" This invention relates " to a peculiar construction and arrangement of certain parts of " jacquard machines, and to a mode of operating the same, " whereby a considerable economy in the number of cards is " effected by causing each card to serve four strokes of the " cylinder or prism in lieu of only one, as is usually the case.

" According to this invention the cylinder or prism is so built " up or constructed as to admit of that portion which carries the " card pins or studs being slid laterally by means of a rod or " spindle, acted upon by an eccentric or otherwise, and inserted " into one end of the cylinder, suitable springs being employed " inside the cylinder for the purpose of returning the pins to " their places again when the action of the rod ceases. The sur-" faces of the cylinder or prism are provided with a series of " grooves or channels made transversely across each face in sub-" stitution for the perforations hitherto employed. The cards " have each four different sets of holes punched therein, and after " the first stroke of the cylinder the ends of the needles are " slightly elevated, so as to bring them opposite a second set of

" perforations for the second stroke. Previous to the third stroke " the card is moved longitudinally along the cylinder or prism, " as before described, which has the effect of bringing the third " set of perforations opposite the needles, and the fourth set of " perforations are brought into action by lowering the needles " again to their original position before making the last stroke, " after which the cylinder is rotated one quarter turn so as to " bring a fresh card into action."

[Printed, 4*d.* No Drawings.]

A.D. 1862, June 19.—N° 1808.

STANSFIELD, Richard, and DODGEON, John.—(*Letters Patent void for want of Final Specification.*)—" Improvements in " looms for weaving." The inventors say,—" This invention " consists, first, in an improved stopping motion for stopping the " loom when the shuttle is not in the box. We employ in each " shuttle box that description of swell which is acted upon by " the top of the shuttle, but bring the end of the swell to the " back of the box, so that when the swell is held up by the shuttle its end shall come in contact with a lever on the stop rod " and hold up the stop rod finger, but when the shuttle is not in " the box, the end of the swell shall not be in contact with the " lever, and thereby allow the stop rod finger to be depressed and " come in contact with the frog and stop the loom. Secondly, " in an improved arrangement of buffer or check strap. We coil " one end of the strap round a concentric or eccentric boss fixed " to the slay or lathe instead of fixing to it the end of the strap " itself." " And, thirdly, in an improved mode of stopping the " loom when the weft thread breaks, or when there is no weft. " We place the weft fork on the opposite side to the setting-on rod, " and instead of placing the hammer on a stud we fix it to a " shaft or tube having upon it a lever which is acted upon by the " absence of the weft, and also at the other end another lever, " which operates upon the setting-on rod or spring handle, and " liberates the brake so as to stop the loom at the breakage or " absence of the first pick of weft."

[Printed, 4*d.* No Drawings.]

A.D. 1862, June 21.—N° 1832.

DAVENPORT, Henry, and DAVENPORT, John.—These " *improvements relate* to the manufacture of loom healds or

" harness, in which in place of the 'mails' 'nooses' are used, " and the improvements have for their object to form knots to " such 'nooses' by the working of the mechanism employed in the " manufacture of such healds or harness, in place of such knots " being produced by hand." "The thread or yarns of which the " healds are produced are conducted from bobbins lengthwise by " the sides and through the hollow end of an instrument, upon " which the 'nooses' are formed, and which serves to regulate " their size. The yarns having passed out from this regulating " instrument are acted upon by points or openers, and then by " other points in pairs, which draw the yarn on each side of the " 'flys' or 'lappers' for lapping on to the rig bands. Other instru- " ments or forks then take back the yarns passing through the " regulator, when pointers on each side take back such yarns, " and from one of them fingers take one of the threads or yarns, " and lap it over the other thread round the end of the regulator, " where it is held by holders whilst the 'openers' come into " operation again. A forked slide on the fingers acts as a pusher " to push the thread therein to the point of the fingers for the " lapping in the proper place on the end of the regulator. A " stop on the hollow end of the regulator prevents the thread " being lapped on to from being drawn out of place by the lap- " ping of the other thread.

" Varnish or other suitable adhesive matter applied to the " knots will hold them in place when finished."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1862, June 21.—N° 1833.

ANDERTON, JOHN.—" Certain improvements applied to the " tape-leg or sizing machine, and in the apparatus employed " therein, for the purpose of improving the yarn." Between the reed and the yarn beam the patentee places "a box or trough " containing water or other liquid, and brushes, rollers, or jets " for supplying moisture to the yarn in its passage to the yarn " beam."

[Printed, 6*d.* Drawing.]

A.D. 1862, June 21.—N° 1840.

LAWSON, JOHN.—The patentee says,—" This invention has " for its object improvements in the manufacture of carpets and

[illegible] and fabrics. For this purpose, in producing a piled [illegible] fabric, I employ a ground warp distended, as is usual, between a warp beam and another beam or roller, on which the fabric, when finished, is wound. This warp is arranged, by preference, in a vertical position, and is threaded through har-
" ness, by which it can be divided into sheds for the passage of
" a shuttle. For the pile yarn, I employ as many beams as there
" are rows in the pattern, and I wind on each of these beams
" colored yarns, the colors on each beam being arranged to
" succeed each other in the same order as they do in the row of
" the pattern to which the beam corresponds. Each of the pile
" yarn beams has attached to it a row of needles, and each pile
" yarn is threaded through the eye of a corresponding needle, a
" short length of the yarn hanging down below the eye of the
" needle. When, in the process of working, it is desired to tie
" the pile yarn into the fabric, and produce with it a row of pile
" tufts, corresponding with one row or line of the pattern, the
" pile yarn beam corresponding with this row or line is brought
" forward, and its needles are caused to pass through the warp,
" carrying the ends of their pile yarns with them sufficiently far
" to be clear of the vertical warp; a shoot of weft is then thrown
" in, and the needles having moved back out of the way, the weft
" is beaten up upon the pile yarn, which has been placed through
" the ground warp in the manner above described. Then the
" needles of the same pile yarn beam are again passed through
" the ground warp, carrying loops of the pile yarn with them,
" and a pile wire is entered through these loops. Afterward
" another shoot of weft is thrown in, which, when the needles are
" withdrawn out of the way, is beaten up. A suitable cutting
" apparatus then divides the loops of pile yarn over the wire, and
" the pile beam, in receding, draws out the loose ends of pile
" yarn, leaving the loops in the fabric. The tufts to form the
" next row of the pattern are then similarly produced by another
" pile beam, and so on."

[Printed, 1*s*. Drawings.]

A.D. 1862, June 23.—N° 1847. (* *)

BARR, WILLIAM. — "An improved manufacture of raised or
" brocaded fabrics, woven in cotton or flax, either alone or in
" combination with wool."

This invention consists in making raised or brocaded fabrics, such as are or may be employed for under garments, collars, trimmings, and other like uses, and which require to be formed of a cotton, linen, cambric, muslin, or other suitable material, or of any or all of such materials in combination with wool, by weaving the same in a jacquard loom, forming the pattern or brocade "from "the weft." A jacquard loom is employed "with either single, "double, or more battens, according to the pattern or width of "fabric required;" the warp being of cotton or flax, according to the material which he wishes to manufacture, and the weft from which the pattern is formed being in some instances cotton, in others flax, and in others wool.

[Printed, 4*d.* No Drawings.]

A.D. 1862, June 26.—N° 1877.

COQUATRIX, JEAN BENJAMIN.—"Improvements in weaving "carpets, tapestry, and similar fabrics, and in apparatus for the "same." The patentee says:—"This improvement, which forms "the essential feature of my invention, is so simple that it can "neither be improved nor modified, and consists in passing the "warp threads through two reeds fixed opposite each other in "the batten of the loom. By using two reeds instead of one as "usual in weaving all kinds of fabrics, I am enabled to use a "much larger number of threads, and also of producing by an "arrangement of the warp a tapestry stitch which has hitherto "only been effected by hand. The stitch of which my improved "carpets are made is that termed 'Gobelin' stitch or fine tapestry "done with a needle."

[Printed, 10*d.* Drawing.]

A.D. 1862, June 27.—N° 1886.

LORD, JOSIAH, and BROWN, JOHN.—(*Letters Patent void for want of Final Specification.*)—This invention relates to apparatus for stopping a power loom when the shuttle does not enter the box. Upon the ordinary stop rod is fixed "a vertical rod pro-"jecting downwards and forming a bell-crank lever with the "'stop rod tongue,' and upon this rod a spring is fixed, which si "acted upon by a stud on the crank arm at each 'beat-up,' also "on the rod, and beneath this spring, a projecting finger is "arranged so as to come under a bowl on the framing, for the

" purpose of holding the 'stop-rod tongue' out of contact with " the 'frog' during the traverse of the shuttle. When the " shuttle enters the boxes as required, the spring yields to the " stud on the crank arm, but when the shuttle omits to enter the " box at the proper time, the back finger on the 'stop rod," not " being sustained by the 'swell' of the shuttle, is at liberty to " fall inwards, so that when the stud on the crank arm lifts the " spring at the next 'beat up,' the vertical rod is moved by the " spring and turns the stop rod sufficiently to throw the 'stop rod " 'tongue' into contact with the 'frog,' thereby effecting the " stoppage of the loom."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 27.—N° 1887.

OWEN, William.—(*Provisional protection only*.)—" This invention consists in producing in the ribbon loom illuminated " tickets, labels, and show cards for denoting the price of, and " otherwise marking or advertising goods in shop windows."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 27.—N° 1889.

MARTIN, Alexander Hennah.—" Improvements in means " or apparatus employed in weaving." " The object of the " improvements is to obtain increased uniformity or evenness in " the winding on or taking up of the cloth. For this purpose " the work beam is borne with the surface of the cloth thereon to " the surface of the top beam or first drawing roller by weighted " or other suitable pressure, and the two beams are geared " together by frictional gear adapted to admit of slip as the " diameter of the cloth beam increases by the quantity of cloth " wound thereon."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, June 28.—N° 1899.

BELDING, George Washington. — (*Provisional protection only*.)—" An improved flexible spring cloth or fabric, especially " adapted for the manufacture of ladies' skirts." " The said improvements relate to the employment of ebonite or other flexible " spring material composed of india-rubber and gutta percha " *or a* material of which these substances or either of them form

" a component." "In producing this cloth the ebonite is com-
" bined with the ordinary materials of which cloth is composed,
" either in the process of weaving or felting, or by attaching
" strands of ebonite to manufactured cloth by sewing."

[Printed, *4d.* No Drawings.]

A.D. 1862, June 30.—N° 1909.

GEDGE, William Edward.—(*A communication from Alexandre Lenne Truffaut and Hubert Raimbault.*)—(*Provisional protection only.*)—" This invention consists of improvements in that part of
" a loom known as the cording or tie-up machine or apparatus,
" and permits working with as many lames as the loom will
" carry, and with a repetition of say thirty treadles; the object of
" this tie-up machine is therefore to give the facility of making
" on power looms figured fabrics, which have hitherto only been
" made by the hand loom. This tie-up machine is composed
" essentially of a main framing, a drum or cylinder divided into
" as many horizontal parts as there are treadles to the pattern,
" and into as many vertical parts as there are lames to the pattern;
" a trundle keyed on the shaft of the above-mentioned cylinder
" of supports bolted on the main framing, and carrying at their
" extremity a cross piece, on which are fixed steel springs, which
" are lifted by a screw placed on the cylinder according to the
" reading of the pattern; of a box pierced with holes, which
" receives the extremities of a number of small slides or slots
" equal to the number of lames; the centre slots or slides receive
" the ends of the above-mentioned springs, and crotchets or
" hooks pass through the upper and lower slots of a clutch or
" claw, which hooks as many of the lower crotchets or hooks as
" the screws of the drum or cylinder raise springs, and as many of
" the upper crotchets as there are springs lowered; of a driving
" plate fixed at the extremity of the shaft of the loom, a pin or
" spindle passing through the plate, and carrying a connecting
" rod, which acts upon levers, bringing together the lames, and
" presenting the crotchets to the clutch or claw; of a stop hook
" catch or pawl which passes between the rods of the trundle; of
" a hook or crotchet, the spindle of which is in one of the levers,
" and which turns the drum or cylinder; on this crotchet is
" rivetted a piece which passes above or below an inclined plane,
" according to the motion given to the crotchet by the lever to
" which it is attached. Motion is communicated to the appa-

" ratus by the driving plate, and the eccentric motion of the " spindle on the plate causes one of the levers to rise and fall. " One lever commands that which carries the clutch or catch, and " also, through an intermediate bar and lever, the lever which " presents the crotchets to the clutch. The cylinder or drum is " instantaneously set in motion or arrested by the crotchets or " hooks, the axle of one of which is on one of the levers, and of " the other on the support bolter on the main framing; the " crotchet carried by the lever has at about three-fifths of its " length a small iron rod, intended to pass above or beneath the " small inclined plane; when this rod passes under the inclined " plane, which occurs whenever the lever on which it is carried " brings the lames together, this rod forces the stop catch or " pawl to rise, then the hook on the lever causes the drum or " cylinder to turn, and as soon as this is effected the rod abandons " the inclined plane, and a spring sends the stop catch or pawl " back to the trundle. When the lever makes the reverse move- " ment, the rod of the crotchet or stop catch passes above the " inclined plane."

[Printed, 4*d*. No Drawings.]

A.D. 1862, July 2.—N° 1927.

ELLERBECK, Joseph.—(*Provisional protection only.*)—" Im- " provements in looms for weaving." The inventor says,—" In " order to vary the force of the blow given to the picking motion " according to the width of the loom or other purpose required, " I employ the under picking stick, and place upon its cap a wide " picking cam with a slot in it, and connect the cam to one arm " of an L lever working on a stud fixed to the loom side, having " a nib on its other arm acted upon by a tappet on the tappet " shaft. The slot in the cam on the picking stick cap is for the " purpose of changing the position of its connection with the arm " of the L lever, bringing the position nearer or farther from the " centre of motion, thereby lessening or increasing its traverse, " and consequently lessening or increasing the force of the pick."

[Printed, 4*d*. No Drawings.]

A.D. 1862, July 4.—N° 1948.

HOWARD, John, and BULLOUGH, John.—These improvements relate to warping and beaming machines. The patentees say,—" Our invention consists of improved mode or arrangements " for stopping the warping or beaming machine when one or more " of the warp threads break, or when a bobbin is empty. We " employ one or more rows of pins, having continuous eyes of a " round, oval, or rectangular shape, and place the shanks of the pins " in sheaths, guides, or slots, imbedded in, connected to, or forming " part of a holder extending across the front part of the machine. " The threads are passed through the eyes by means of a light " reed hook, and when they are entire they support the pins, but " when a thread breaks or there is no thread, the pin through " which it should pass sinks in its guide and becomes an instrument " for putting into action auxiliary agents to stop the " machine. In one arrangement we employ a current of electricity " for charging an electro-magnet, having within its influence " a catch in connection with the knocker-off piece. Below " the pins we have two conducting surfaces connected respectively " by wires to the negative and positive poles of a battery, and " placed in such positions that when the wires are supported by " the threads they can only touch one of the conducting surfaces, " but when one or more pins are lowered by the breakage or " absence of the threads, they come in contact with both conducting " surfaces, and thus completes the circuit by forming a " connecting link between the two poles. The electric current " thus established charges a magnet, which by attracting a catch " or other agent brings the knocking-off piece into action and " stops the machine. The thread being again pieced supports its " pin, thereby breaking the connection between the two poles, so " that the magnet having lost its power, cannot attract the catch " or agent which brings the knocker-off into action, and so the " machine continues working until another breakage or absence " of thread allows a pin to fall, which acts as before described " and stops the machine. In another arrangement we make the " pins instruments for calling into action purely mechanical agents. " This arrangement may be termed an ' escape motion,' because " the lever or fork which stops the machine is made to escape a " catch or other suitable instrument, which is constantly trying to " catch it, and thereby bring it into action; but when a thread is " broken, the lever or fork can no longer escape, but is caught by " the said catch and made to fulfil its office of stopping the " machine. We have one or more wires, rods, or bars oscillating " under the suspended pins; at each oscillation the fork or lever

“ is carried out of the way, but when a thread breaks and allows “ a pin to fall, the bar is obstructed by this pin and cannot take “ the fork out of the way, the fork is therefore caught and made “ to stop the machine.”

[Printed, 2*s.* 6*d.* Drawings.]

A.D. 1862, July 10.—N° 1991.

LEEMING, JOHN.—The patentee says:—“This invention has “ for its object improvements in jacquard or index machines, “ being a simple and efficient arrangement and combination of “ the working parts, whereby I am enabled to work with either “ what is known as a double or single lift, and also to form a **V** “ shed, that is to lift the back heald a greater height than the “ front one, and so cause less strain upon the warp threads. To “ effect these objects, I apply to one end of the machine two “ wheels, made fast to each other, of different diameters and “ number of teeth, mounted upon a stud or suitable supports, “ and to the other end a single wheel, containing the same number of teeth, and corresponding in diameter to the smaller of “ the two wheels at the opposite end of the machine; into each “ opposite diameters of the larger of the two wheels on the one “ end, and into each of the opposite diameters of the small wheel “ at the other end of the machine I gear racks working vertically, “ and into one diameter of the smaller of the two wheels which “ are made fast to each other, I gear another rack working also “ vertically; to this said rack and to one of the other racks which “ gears into the small wheel at the opposite end of the machine I “ affix the crosshead, from which motion is imparted to the “ several parts of the machine. The knife or griffe I connect by “ a pin joint to one of the vertical racks at one end, and by a “ similar joint and slot to another rack at the opposite end; the “ bottom board is similarly connected, but to different racks. The “ action of the machine will cause a greater traverse of the knife “ or griffe at one of its ends than the other, and also a similar “ difference in the bottom board. The knife or griffe will traverse “ upwards when the bottom board is going down, and down “ when the bottom board is rising. When a single lift is required “ that is to tread the warp all in one direction I remove the pins “ from the joints in which the bottom board has previously “ worked when obtaining a double lift, and place them in holes in “ *projections from* the end of the machine provided for them, and

" passing through the bottom board, which will remove it out of " contact with the racks and cause it to remain stationary, so " that the knife or griffe alone will traverse. The cylinder of " the machine I operate by affixing to one of the vertical racks a " finger working in the slotted end of a bell-cranked lever, which " is mounted upon a stud on a stud plate projecting from the " end of the machine; the other end of such lever is provided " with a slot, into which another stud made fast to the end of " the frame of the cylinder works, so that when the rack is raised " the bell-cranked lever will have the effect of drawing the cylin- " der towards the needles of the machine, and when depressed, of " withdrawing the cylinder from the needles, and turning it over " by a catch or other suitable means."

[Printed, 10*d*. Drawing.]

A.D. 1862, July 11.—N° 1999.

ORR, JOHN.—"This invention relates to the weaving of certain " piled fabrics called 'chenille fabrics,' wherein the piled surface " is produced by introducing 'chenille fur' into the fabric as " weft."

"Hitherto in weaving chenille fur as weft it has been customary " to stop the loom and to fix back the lathe whilst the fur shoot " was being put through the shed and set to the pattern, but by " the present plan the loom may be kept in motion, and the " intervening shoot or shoots requisite to form the ground of the " fabric be put in whilst the weaver is setting the fur shoot. To " accomplish this the 'catcher' warp will be adjusted so as to " remain at what is called an 'open shed' in relation to the " ground warp, except at one shoot for each fur shoot put into the " fabric, which shoot may be called the 'fastening shoot;' but " during all the other movements of the loom the 'catcher' warp " remains at the open shed, thus leaving the fur shoot free to be " properly set to the pattern without stopping the loom and " fixing back the 'lathe' as previously practised.

"One method of forming and keeping the open shed already " referred to is by passing the 'catcher' warp threads through " needles set in a frame similar to the well-known lappet frame, " only in this case the frame is placed above the ground warp " with the points of the needles downwards, exactly contrary to " the usual lappet method and also as is usual in lappet weaving.

"The threads that are through the eyes of the needles are kept "out of the reed through which the ground warp passes, but "may be brought down into it whilst the fastening shoot already "mentioned is being put in. If a reed open at the top be used, "or if a common reed closed at the top is used for the ground "warp, the 'catcher' warp may be brought down into the shed in front of the reed whilst the fastening shoot is being put through, after the manner of lappet weaving."

[Printed, 8*d.* Drawing.]

A.D. 1862, July 12.—Nº 2005.

HUNT, JACOB.—(*Provisional protection only.*)—This "invention "applies to what are known as 'tape sizing' and 'slashing "'machines,' and consists principally in opening, dividing, or "separating the yarn whilst in a wet state (immediately after it "leaves the finishing size rollers, and before it goes on round or "over the drying cylinder or cylinders of the machine) into two "sheets or layers, or into as many sheets or layers as there may "be back beams used in the machine. All these sheets or layers "then proceed over the drying cylinder or cylinders of the "machine. This opening, dividing, or separating of the yarn or "thread is effected by means of rods, bars, rollers, or other pieces, "formed of glass, metal, wood, or other suitable material or combination of materials, extending across the machine, and supported by brackets, bearings, or fixings placed at any convenient "distance from the finishing size rollers."

[Printed, 4*d.* No Drawings.]

A.D. 1862, July 12.—Nº 2012. (* *)

BATEMAN, DANIEL.—"Improvements in the manufacture of "card cloth used for carding wool and other fibrous substances."

The patentee states:—"I make card cloth of an admixture of "linen and wool, the warp being linen and the weft of wool, or of "woollen felt or woolen cloth, or a mixture of cotton, linen, or "woollen cloth; and I treat the front surface of the card cloth "with a composition which is impervious to the action or influence of oils or grease. I use a mixture of one gallon of "boiled linseed oil, four to six pounds of rice flour, half a pound "of common glue, marine or other waterproof glue, and two "pounds of gum, with which I treat or coat the front or both

" surfaces of the card cloth, and fix thereto a covering of water-
" proof enamelled cloth, composed of cotton or linen cloth, with
" the surface prepared with a mixture of one gallon of boiled
" linseed oil, and one pound of lampblack for the first coats, and
" with boiled oil and yellow ochre, or other metallic or mineral
" powder for the finishing coats, and to give it the color required,
" so as to form a perfectly pliable and uniform surface."

[Printed, 4*d.* No Drawings.]

A.D. 1862, July 14.—N° 2021.

SANDERSON, PETER, and SANDERSON, ROBERT. — (*Provisional protection only*).—" This invention relates to the " manufacture of a particular kind of cloth suitable for wearing " apparel. This cloth is woven in such manner that at regular " intervals a loop is formed on the surface of the cloth, which imparts a peculiar knotted appearance to the finished goods. " These loops are formed at predetermined distances asunder in " the width of the fabric and at a regular distance longitudinally " by weaving a given number of shots of weft between each " transverse row of loops."

[Printed, 4*d.* No Drawings.]

A.D. 1862, July 18.—N° 2053.

STOTT, FREDERICK LUKE. — (*Provisional protection only.*) — The inventor says :—" My invention relates to that class of warping machinery known as 'warping mills,' where 'hecks' are " employed, through the 'eyes' of which the threads pass, being " afterwards collected together in divisions termed 'beers' or " 'half-beers,' and to mechanism or arrangements for acting " upon these divisions of threads when taking the 'lease,' the " object of my invention being to prevent the 'twisting' of the " 'beers' or 'half-beers' when passing on to the 'mill ;' and my " invention consists in modifying the 'forks' which act upon the " divisions of the threads when taking the lease, so that such forks " will arrange the threads passing through or between their " 'prongs,' and cause the threads to be laid upon the mill 'tape- " 'wise,' which I accomplish by constructing the 'forks' with an " inclined surface formed upon or applied to them at the bottom " and between the two prongs of each 'fork,' so that the threads " passing between the prongs of the forks will come against the

" said inclined surfaces, and by this means will be placed parallel " side by side, and thus the plane in which the threads are arranged will be changed from the horizontal to the vertical position, and in this position pass on to the mill."

[Printed, 4*d*. No Drawings.]

A.D. 1862, July 21.—N° 2074.

NAUDAIN, ANDREW, PEACOCK, JAMES, and WALTON, WILLIAM HENRY.—(*Provisional protection only*.)—This "invention consists in weaving fabrics in a circle or any part of a " circle, and in using a plurality of shuttles passing through a " warp or web at the same tine, and in carrying the shuttle " or shuttles through the warp by means of friction rollers, " pullies, or belt or their equivalent, and by beating up the weft or " filling in sections."

[Printed, 8*d*. Drawing.]

A.D. 1862, July 21.—N° 2076.

PHILLIPS, ANDREW.—(*Provisional protection only*.)—"This " invention relates to the arrangement and construction of looms " for weaving carpets and other generally similar figured fabrics, " and is based upon an invention of improvements in weaving " carpets for which Letters Patent were granted to the said " Andrew Phillips," No. 1694, A.D. 1859. "In this invention " the looped or velvet-pile surface of the fabric is formed wholly " of the weft, which is bound in by a secondary or binding weft.

"The present invention comprehends an improved arrangement " of the weaving mechanism so as to accomplish a similar result " with simpler but more efficient means. Under one modification " or system of arrangement the warp is wound upon two beams " arranged at the back of the loom and placed in the usual way. " In addition to this there is a fixed or 'dandy chain' of warp " wound upon two beams arranged inside the warp beams. The " object of this dandy chain, which is not affected by the action " of the heddles, is to afford a proper support for the shuttle " when a large proportion of the warp threads are depressed by " the jacquard mechanism." "Above the warp beams is arranged " a beam having a row of pins inserted therein, to each of which " a short india-rubber spring is attached. The other ends of the " springs are connected to a series of wires or cords which extend

" to the front part of the loom, and are fastened to a cross rail
" parallel to the breast beam; these wires are arranged so that
" there is one wire between each pair of warp threads. In their
" passage to the front part of the loom the wires pass through
" eyes formed in a series of pendent wires or cords furnished with
" nails to admit of the passing through of the wires. These
" pendent wires are connected to a series of lifters arranged
" overhead, and formed, by preference, of flat pieces of steel or
" iron. These lifters are formed with a longitudinal slot at the
" upper part, and a bar passes through the whole series; this
" bar is connected to an overhead lever, which is attached at the
" other end to one of the treadles of the loom, if actuated by
" manual power, or the lever is operated by a cam movement in
" a power loom. In either case the depression of the backward
" end of the overhead lever causes the whole series of lifters to be
" raised, and they are upheld by the projecting part of a notch
" formed in the lower part of each lifter coming over a rail
" extending across the upper part of the loom. The effect of
" raising the lifters simultaneously with the shedding movement
" is to cause the whole series of horizontal wires to rise in manner
" similar to the upper portion of the shed, so that when a shot
" of weft is made, and the wires are caused to descend, each
" wire takes down the weft, causing it to form a loop by extending
" it over a series of loop formers which are arranged between the
" horizontrl wires." "When these loops or pile formers are
" lying flat or in their normal position on the breast beam the
" weft passes over them in an uninterrupted line, but if a certain
" proportion of the bars are raised a corresponding number of
" loops are formed, which are secured to the body warp by the
" binding weft. The raising of these loop formers is effected by
" connecting them to a jacquard machine, so that the desired
" figure will be produced, the different colours being obtained
" by throwing in various coloured weft, according to the sequence
" of colour in the design to be woven."

" As the cloth is woven it is taken up by a self-acting movement
" and wound upon the beam. A lever is carried on a stud which
" is supported in a bracket on the loom framing; the free end of
" this lever extends backwards, so that as the lathe goes back it
" depresses the lever, and causes a pawl carried on its front
" extremity to move a ratchet wheel round one tooth. This
" ratchet wheel is keyed on the stud carrying the lever, and at the

" inner end of the stud is a pinion which gives motion to a wheel " on the pike roller, which roller is paced to the cloth beam " so as to cause it to move in unison with the pike roller."

[Printed, 4*d.* No Drawings.]

A.D. 1862, July 22.—Nº 2081.

SMITH, DOCTOR WILLIAM.—(*Provisional protection only.*)— " Certain improvements in power looms for weaving." This " invention relates to that portion of the loom known as the " 'yarn beam,' and consists in the novel application thereto of a " 'break' in the form of a circular hinged band, having a pro- " jecting piece attached. The hinged circular band may be made " of metal or other convenient material, and encircles the neck of " the yarn beam, the friction thereupon being obtained and regu- " lated by a screw passing through the ends of the band, and " thus the revolution of the yarn beam is governed in a more " simple manner than by means of the ropes and weight, as " hitherto. The projecting or tail piece of the break bears " against a stud or spring to prevent the break turning with the " beam."

[Printed, 4*d.* No Drawings.]

A.D. 1862, July 22.—Nº 2091.

VAUTIER, ANTOINE CONSTANT.—" Improvements in obtaining " fibrous materials, and in manufacturing paper pulp, also in " preparing, bleaching, and treating fibrous materials, and fibrous " and textile fabrics, and in producing agents used in part of " the invention."

The patentee says, " To obtain fibrous materials from trees, " shrubs, and plants, and from parts and products thereof, I sub- " ject the said trees, shrubs, plants, parts or products, herein-after, " to avoid the repetition, called the 'matters,' to a process of " disintegration, whereby I dissolve their gummy and resinous " constituents and separate their fibrous from their other portions, " and sometimes by the same operation I bleach the fibres."

" My process consists wholely of chemical means as distinguished " from mechanical means, that is to say, I do not use tools, " machinery, or mechanical instruments, or apparatus, I subject " the matters to one or more boilings, coatings, or hot treatments " *in* alkaline, acid, saline, soapy, or calcareous (lime) liquors or " *solutions, before, after,* or between which I soak or macerate,

" or both soak and macerate, the matters in hot or cold alkaline, " acid, calcareous (lime), soapy or saline liquors, or in hot or cold " water, and I wash or rinse them in such liquors."

"I prepare coatings, varnishes, or compositions in which I " employ the azotized gummy secretion discharged from silk in " the ordinary process of scouring or ungumming it (or of discharging its gum), or I produce compositions of azotized and " gummy substances analogous to the aforesaid substances produced by combining vegetable gums, gummy substances, or " resins, or gums and resins with azotized matter, such as " gelatine, albumen, or like matters, using water, ether, or " alcohol as the vehical or solvent. With these agents I treat " threads and fabrics obtained from flax, mulberry tree bark, and " other barks and other leaves, fibres, and matters previously " treated by my processes, and I thus obtain products resembling " the silks of commerce."

[Printed, 10*d*. No Drawings.]

A.D. 1862, July 30.—N° 2163.

BENYON, John.—This invention relates to the taking-up motion of a loom. "To the under side of the take-up roller is " applied a rod in the usual manner, which rod, as the fabric " accumulates on the roller, moves a lever to which a chain is " connected; this chain is also connected to a lever hinged to the " lay sword, and passing through the catch lever by which the " ratchet wheel and a train of wheels and pinions are put in motion. On commencing a piece, and when the take-up roller is " bare, the catch lever vibrates to the greatest extent, but as the " fabric accumulates on the take-up roller the vibration of the " catch lever is proportionately reduced to diminish the motion " of the take-up roller. The lever hinged to the lay sword is " hinged in such a manner that the fulcrum can be brought " nearer to or removed from the fulcrum of the swing shaft, thus " affording facility in regulating the take-up motion to the " quality of the fabric. A similar arrangement of parts may " be applied to the warp beam to effect a positive let-off " motion."

[Printed, 8*d*. Drawing.]

A.D. 1862, July 31.—N° 2171.

WEILD, William.—"Improvements in machines for cutting, " *shaping, rolling, drilling*, screwing, milling, and fluting metals."

Part of this invention relates to modifications of a machine for manufacturing rollers for spinning, for which Letters Patent were granted to the present patentee "bearing date the Twentieth " September, One thousand eight hundred fifty-nine, No. 2139, " and it consists in applying the method of milling flutes in " rollers for spinning, to milling or roughening the surface of " rollers to be used as self-acting temples, and the taking up " rollers in weaving." The machine is similar to a self-acting slide lathe. Two milling tools are used acting upon opposite sides of the roller, one milling tool is supported by an adjustable bracket attached to the slide plate, the other milling tool is attached to a lever which has its fulcrum in a crossed slide connected to the slide plate, the requisite pressure is applied to the lever by a weight. In roughening the surface of rollers for self-acting temples or other small rollers the patentee applies two milling tools at one side of the roller.

[Printed, 3*s*. Drawings.]

A.D. 1862, August 2.—N° 2192.

WARNE, Charles.—(*Provisional protection only.*)—"This in-" vention has for its object improvements in the manufacture of " linen drabbett." The inventor proposes to "manufacture this " drabbett of flax warp and flax weft. The advantages of using " this flax warp and flax weft combined, instead of flax and " cotton, is that it is much more durable and stronger."

[Printed, 4*d*. No Drawings.]

A.D. 1862, August 5.—N° 2198.

TOWNSEND, Joseph. — "This invention has for its object to " prevent the serious injury to cotton or other goods which has " hitherto often arisen from mildew or from the decomposition " of the size or stiffening used in their manufacture.

" The invention consists in applying chloride of magnesium, " chloride of calcium, or a mixture thereof, to the fibrous mate-" rial, prior or subsequently to its being woven." "The decom-" position of size or stiffening, such as is used in the manufacture " of cotton or other fibrous materials, is prevented by combining " with it chloride of magnesium, chloride of calcium, or a mixture " thereof, in the proportion of about half an ounce, and in no " case exceeding four ounces of the chloride to every pound of the " size."

[Printed, 4*d*. No Drawings.]

A.D. 1862, August 8.—N° 2227.

TATHAM, John.—“ Improvements in machinery or apparatus “ for preparing, spinning, and weaving cotton and other fibrous “ materials, parts of which improvements are also applicable to “ other mechanism in which an uniform or variable rotatory “ motion is required.”

The part of this invention which relates to the subject of the present series is described by the patentee as follows :—“ Another “ part of my invention refers to arrangements of friction surfaces, “ whereby I am enabled to transmit rotatory motion from one “ part to another, either at an uniform or variable speed. To “ this end I employ a disc driven by the motive power, which “ disc is in contact with one or more surfaces on each side thereof, “ so that it is acted upon by a continuous clip ; or the arrange- “ ment may be reversed, and the said clips will then become the “ driving medium. To obtain the variable speed I cause one “ of these parts to be moved towards or from the centre of the “ other, so that a different radius may be acted upon. Or I use “ moveable carriers between the driving and driven parts. When “ more power is required than one disc and clips will afford I “ arrange two or more sets upon the respective shafts.”

“ In another arrangement I use discs, against which projecting “ parts or other discs are caused to press in conjunction with a “ repetition of the arrangement upon the same shafts, but pressed “ forward in the contrary direction. These arrangements of “ friction surfaces may, for example, be applied to the roving “ frame of cotton machinery in place of the ordinary cones, and “ to the loom as a motion for taking up the work or letting off “ the yarn ; but they are also applicable to other cases in which “ an uniform or variable rotatory motion is required.”

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1862, August 9.—N° 2229. (* *)

FOWLER, Robert.—(*Provisional protection only.*)—“ An im- “ proved manufacture of woven, plaited, knitted, and other “ fabrics.”

This invention “ consists in weaving or otherwise plaiting, “ knitting, or interlacing together threads made or composed of “ a natural gum, such as gutta percha or caoutchouc, or of a “ compound of such gum or gums with other gums or ingre-

" dients. The gum or compound may be used in the natural or " purified state, and it may be dyed, colored, or otherwise treated " to increase its ornamental effect. The fabric produced may " consist entirely of one or more kinds of gum or compound, or " gum threads may be combined in the same fabric with threads " of cotton, woollen, silk, or other fibres, or with hair."

[Printed, 4*d*. No Drawings.]

A.D. 1862, August 11.—N° 2237.

BARLOW, Henry Bernoulli.—(*A communication from Hyppolite Victor Hermite.*)—" Improvements in machines for weaving, " warping, sizing, and dressing." " The object of this invention " is to separate each warp thread from its adjoining warp threads " previous to passing through the healds, and to give notice or " to arrest the machine when any of the warp threads adhere " together.

" In machines of the present construction the warp is divided " by stationary or loose lease rods. Now this invention consists " in giving an oscillating or to-and-fro motion to one or more " rods, by which the warp is divided. This rod is supported on " part of the frame of the machine. A lever bears against each " end of the rod, and one of these levers is connected by a string " or link to an elbow lever, with a bell on one arm. When the " rod is displaced by any of the warp threads adhering together " the bell is brought into position for being struck by the lay of " the loom or by any other moving part of the machine, for " weaving, warping, sizing, and dressing, to which the improved " apparatus is applied; or when the rod is displaced the lever acts " on the ordinary stop rod to move the driving strap from the fast " to the loose pulley."

[Printed, 8*d*. Drawing.]

A.D. 1862, August 11.—N° 2241.

HOLDSWORTH, Tom, and CROSSLEY, John.—(*Provisional protection only.*)—These improvements relate to apparatus " for " warping, scouring, sizing, stretching, measuring, cooling, drying, and beaming yarns for weaving." The inventors say:— " This invention consists generally in constructing, arranging, " and combining machinery or apparatus for effecting the several " purposes in one operation, and particularly in arranging the

" bobbin creels in such manner that a greater number of ends or " threads may be warped together than heretofore, by using sup- " ports and by crossing the threads to prevent entanglement " betwixt the bobbins and the point or place where the warp is " formed; also in taking the 'lays' or 'leash' or dividing the " warp to form the shed by means of healds or heddles; also, in " having the scouring troughs lined with or formed of galvanized " iron, and in applying a hand lever to remove the top squeezing " rollers from contact with the bottom ones, when desirable, in " the scouring and sizing parts of the apparatus. We also employ " rollers to traverse or travel the warp backward and forward to " obtain extent of distance betwixt the squeezing rollers and " beam for stretching the threads; also we apply fans for cooling, " and steam cylinders for drying the warp after the process of " scouring and sizing; we also apply an index plate or indicating " apparatus, in such manner as to be actuated by one of the " traverse rollers, for measuring the warp as it is passed forward " to the beam, and which apparatus may also be made to mark the " 'cutts' or lengths of pieces; we also drive the beam by friction " plates, capable of adjustment to the stretch or tension desirable " to be put upon the warp, and the bearings for the beam are so " arranged as to be adjustable to the length thereof."

[Printed, 4*d*. No Drawings.]

A.D. 1862, August 11.—N° 2247. (* *)

COMBE, John, and SMALPAGE, John Henry.—" Im- " provements in the action and arrangement of machines for " winding cops, and in apparatus for holding and receiving " such cops when used for warps or sewing thread or other " purposes."

These improvements consist, firstly, " in combining an upright " bar carrying a weight with a horizontal vibrating arm made " with a forked end, carrying two friction rollers working between " two collars on the spindles of cop-winding machines, so that " the downward pressure of the weight acts on the spindle, but " is independent of and does not revolve with the spindle, as " heretofore, which tends to cause vibration at high rates of " speed; and in connecting such upright bar with two treddles, " so that the pressure of the foot on one treddle causes the " spindle *to rise for the* purpose of piercing a broken end, and a "similar pressure on the other treddle causes the spindle to descend for the purpose of doffing when the cop is wound, and in connecting a perpendicular arm projecting from the horizontal arm above described with a horizontal sliding rod, furnished at the end with an adjustable screw which acts on the stopping catch, so that the spindle can be used to stop at any point of its ascent during the winding of a cop."

"Secondly, in causing the weight acting on the tension lever of cop-winding machines to vibrate in the lower quadrant of a circle, so that, an increasing tension being given to the yarn as the tension lever rises, cops may be wound from the hank with the constant drag as now commonly applied to the swifts which carry the hanks, and from the bobbin with a constant drag in place of the self-acting drag as hitherto adopted, and in arranging the stopping weights in pairs and the carrying sockets of the spindles in sets, so as to produce a simpler arrangement and give greater facility for putting together and taking asunder."

"Thirdly, in combining with cop-winding machines a heated cylinder or other surface over which wet spun yarn or other spun material with dressing applied to it may be passed and dried in the process of being wound into cops."

"Fourthly, in the construction of banks for holding cops of a series of shelves cut out at uniform distances in hollows to receive the cops, each hollow having a glazed delf eye in front of it, covered by a friction spring, adjustable by a screw for regulating the tension on the yarn as it is delivered from the cop, and in making such banks in a series of shelves provided with upright pins on which the cops are placed with glazed delf eyes, and tension springs attached to cross bars stretched above the lines of those upright pins."

"Fifthly, in the construction and use of boxes, made in a plain or ornamental style, of cardboard or turned wood or other material, containing cells or series of cells for receiving cops wound of sewing thread or other spun material, such cells to be used instead of the wood bobbins on which threads are now usually wound, and such spun material to be wound in the form of cops instead of balls as in present use."

"Sixthly, in the construction of cop-winding machines in which the spindle wheel is made with a socket in which the spindle slides, and is pressed into the cup with a spring, and

" the driving wheel has an excentric ring attached to it acting on
" a lever, one end of which gives the traverse required to build the
" cop, and the requisite drag is given by a lever pressed by a
" spring against the bobbin from which the thread is wound, the
" end of such lever being acted on by the pull of the thread, as it
" is wound, and giving the action usually obtained by the tension
" lever by being made to spring, yielding and recoiling to the
" tension or slackening of the thread, such machines being
" chiefly applicable to the winding of small cops for sewing
" machines."

[Printed, 1*s*. Drawing.]

A.D. 1862, August 13.—N° 2270.

SMITH, Charles William, MOULD, William, COOK, Samuel, and HACKING, William Henry. — (*Provisional protection only.*)—" Improvements in looms for weaving." The inventors say :—" This invention consists, first, of an improved " taking-up motion for the purpose of giving any desired number " of picks to the inch without the aid of the usual emery roller. " We employ a rod or roller which is in contact with the cloth " on the cloth beam; from this rod is swung a straight lever, to " which an oscillating motion is given by the slay sword or " tappet shaft of the loom by means of a connecting rod. This " lever imparts its motion to an upright double lever, fixed on a " stud in the frame side by means of a pin or stud working in a " slot at one extremity of the double lever. At its other extremity a forked lever is swung by means of a pin, to which the " same oscillating motion is given. Working loose on a pin in " the forked lever, a ratchet wheel suitably provided with one or " more palls is carried, and to which is attached a small spur " wheel gearing into a large spur wheel on the ordinary change " wheel shaft of the loom. It is evident that when a forward " motion is imparted to the forked lever by means of the before-" described train of levers, the small spur wheel, being prevented " from revolving by the palls of the ratchet wheel to which it is " attached, will cause the large spur wheel into which it gears to " make a partial revolution, and that when the backward motion " is given to the forked lever, the small spur wheel being then " released will revolve in the same way as the sun-and-planet " motion until it comes into the position it at first occupied.

" The large spur wheel is prevented from revolving in the wrong " direction by means of one or more catches.

" In another arrangement, in place of the forked lever, we use " a filbow or fork which clips the large spur wheel on each side, " and is swung on the change wheel shaft of the loom. The " small spur wheel and ratchet wheel already described are carried " by the filbow or fork, which is operated upon by a modified " arrangement of the levers already mentioned. As the cloth " accumulates on the cloth roller or beam, the rod which presses " against it will descend, and cause the stud to fall in the slot of " the double lever, and thereby decrease its motion in the same " proportion as the beam is filled.

" Secondly, of a positive break or stop motion, which always " stops the loom in any given place. This arrangement consists " of a lever which is provided with a catch, the lever being so " made as to fit the surface of a pulley or fly wheel with which it " has to come in contact. The pulley is also provided with a " notch or dent, and the catch is made to project a little through " or past that part of the lever which comes in contact with the " surface of the pulley, and thereby stops it from revolving when " the lever is pressed against it. To prevent any strain being " given to the loom, the pulley or fly wheel is put loose on the " first motion or crank shaft. A spring is attached to the first- " motion or crank shaft, and is also connected to the before- " mentioned loose pulley. When the catch comes in contact " with the notch or dent, the spring yields to a certain extent, so " that the loom may be stopped when running at any speed. " The break lever and catch are brought in contact with the " pulley by a connecting rod, which is in a horizontal position. " This rod is in two parts, and is connected in the middle by a " spiral spring, so that when the weft fork lever is moved it " causes the rod to move and draw the break into contact wit " the pulley or fly wheel.

" Thirdly, of a compound weighting lever, which dispenses with " three-fourths of the weight ordinarily used. We place the " weight lever on a stud about two inches from one end of it, " and at a short distance below it a grooved pulley is carried on " another stud. The rope or chain is passed from the yarn beam " round or under the pulley, and then to the short end of the " *weight lever.*"

[Printed, 4d. No Drawings.]

A.D. 1862, August 15.—Nº 2304.

CARTER, John, and MAHER, James.—The patentees say:—"Our object in this invention is to simplify the construction of "the parts for working the shuttle boxes of power looms, and to "bring them severally as required into line with the open shed; "to this end we cause the levers from which the shuttle boxes "are suspended to rock and raise the boxes by motion obtained "from the main driving shaft, and we effect the tripping of these "levers so that they may fall and let down the boxes from a "motion derived from the same main driving shaft. The shuttle "boxes we lift by means of excentrics or cranks on the driving "shaft, which are connected by straps to a pair of catch rods, and "by their rotation give an up-and-down motion to those rods. "The catches of these rods are intended to take into pins pro-"jecting from the sides of the shuttle box levers when the boxes "are to be raised, and on their descent to rock the levers and "elevate the boxes. When, however, it is desired that no such "action shall take place, the excentric catch rods are allowed to "be brought forward by a spring, so that in their descent, actuated "by the excentrics, the hooks on their upper end and on the "right hand will pass by the pins of the box levers. By this "means the hooks on the left-hand side of these rods are brought "over the disengaged ends of the pendent catches (which act as "stops to the shuttle box levers, and maintain the shuttle boxes "in their different positions), and press the catches to a different "position on the box lever, so as to allow the shuttle box required "to come into line with the open shed. The reversing motion is "obtained by the agency of two eight-sided star wheels on a "small cross shaft supported in the top rails of the loom. These "star wheels are different in size. On the top of a shaft (driven "from the main shaft by toothed wheels equal in size) are two "circular surfaces to correspond with the star wheels, and as the "one or the other is in position a back or forward motion is given "to the chain box." "The pick is obtained from the jacquard "by the employment of a needle spring and jack. Each picking "lever is out of connection until required, and kept so by springs. "Between the levers is a long rod which receives a motion to the "right or left from the jack, and so presses the one required into "action; when not required, the spring takes it back to its "original position."

[Printed, 10d. Drawing.]

W. R.

A.D. 1862, August 20.—N° 2329.

WHITTAKER, Henry.—(*Provisional protection only.*)—"This "invention relates to that description of heald in which are used "short wires containing the eyes instead of cords or bands."

The "improvements consist in attaching to each of the ordinary "shafts a shaft or rod, which carries the short wires containing "the eyes, by means of a split ring passing through a hole at "each end of each wire, by which arrangement the wires will "yield to the action of the yarn; any of the wires can be re- "placed, and the wires can be separated from each other for "allowing the hand to be passed between them when required. "In some cases the shafts or rods which carry the short wires "may be used without the ordinary shafts."

[Printed, 4*d*. No Drawings.]

A.D. 1862, August 23.—N° 2357.

ANGELO, Martin Kenneth.—"Improvements in apparatus "used in the manufacture of shellac."

The patentee makes use of woven tubes for the manufacture of shellac. With reference to this part of the invention he says, "In weaving tubes for the purpose of my invention I prefer to "use yarns or threads of cotton, though yarns or threads of other "fibres may be employed; and in weaving seamless tubes "suitable for my invention I believe it will be found that the "most suitable fabric for the purpose is tabby weaving, that is, "equal warps up and equal warps down each time the weft is "passed through the shed opened in the warp, though other "'ties' may be resorted to in weaving seamless tubes."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, August 27.—N° 2370.

CRICHTON, Alexander.—"This invention comprises various "improvements in looms for weaving ornamental fabrics."

"A first improvement relates to the weft fork stopper action. "There is a weft fork with accompanying details at each side of "the loom, but both acting on the same stopper spindle, which "is continued across the loom, and acts on the stopping lever at "one side in the usual way. The hook of each fork when not "acted on by the weft is in a position to be caught by a lever "loose on the stopper spindle, and these levers are made to "reciprocate by cams on a shaft driven at a suitable speed. The

“ cams are shaped so that each causes the reciprocation only when from the regular weaving action the weft can be present at that side. The weft forks are situated a little higher than usual, and instead of working in a groove cut across the race, move clearly over it, and so as not to touch threads lying upon it. The last shot thrown is, however, always raised to meet the fork when the lathe moves forward by a light finger or lever, which at other times lies in a small groove cut for it across the race. This finger or lever is centred on the lathe, and on the lathe moving forward its back end comes in contact with a stationary stud or pulley, which causes the front end to be tilted up. By these means the action of the weft fork is confined to the last shot thrown.”

“ A second improvement relates to the picking motion. The low shaft moving at the same speed as the crank shaft is fitted with wipers to act on horizontal levers centred at the back of the loom near the floor at each side, and connected at their front ends to the picking sticks or levers. It is necessary that two or more picks should take place from one side, and then two or more from the other alternately, and for this purpose each horizontal lever is provided with a block fitted to slide longitudinally upon it, and arranged to receive the stroke of the wiper in one position, whilst the wiper does not reach or act on the lever when the sliding block is in the other position. Each sliding block is moved into or out of its acting position by means of a lever acted upon by a cam shaped to suit the requirements of the pattern or kind of weaving.

“ A third improvement relates to the mechanism for actuating the shifting shuttle boxes when of the ordinary ‘dropping’ kind. The dropping of the boxes cell by cell is effected and regulated by means of a cam or tappet wheel driven at a speed corresponding to the number of shuttles, and having its acting surface formed with steps, which act on a lever connected to the shuttle boxes. The lifting of the shuttle boxes, which has to be effected the entire height at once, is caused by the action of a seperate wiper on the lever connected to the shuttle boxes.”

“ According to a fourth improvement there is substituted for the ordinary rigid shuttle box an endless chain of separate shuttle boxes or cells, hinged, or otherwise loosely connected *together, and mounted* on a ‘cylinder’ or ‘barrel’ of, by pre-

" ference, four sides. Such 'cylinder' is mounted at each side " of the loom in a manner similar to the 'cylinder' of a jacquard " machine, and with similar details for turning and steadying it."

"A fifth improvement relates to the working of heddles in " combination with harness mechanism in weaving 'Paisley' " shawls and similar goods. The heddles are actuated by means " of the jacquard mechanism to form what are termed the " 'pressing,' 'dumflower,' and 'small shot' sheds, but to keep " each shed open for the entire run of shuttles, catches are pro- " vided, which retain the heddles in position during the proper " periods, such catches being released again by the action of " jacquard tails, whereupon the heddles return by the action of " springs or counterweights.

"A sixth improvement consists in providing a small drum or " pulley on the 'cylinder' or 'barrel' of a jacquard machine, " round which drum is passed an endless chain or cord, for the " purpose of turning the cards backwards or forwards when " they require adjusting. A second cord passing over a pulley " is connected to the turning catches to take these out of gear " when adjusting the cards. By these means the adjustment may " be effected with facility from below."

[Printed, 1*s.* 6*d.* Drawing.]

A.D. 1862, August 30.—N° 2406.

HUGHES, Edward Thomas.—(*A communication from Adolphus Henry Polko.*)—The patentee says:—"This invention consists of " using straw instead of the usual materials for the weft, with " any strong material such as flax or hemp for the warp threads, " cotton or wool may be used, but they will not be so durable as " flax. I use an ordinary loom, such as is generally used for " weaving linen cloth, but to facilitate the use of the straw I " make the shuttle with a spring from the centre extending to " each end, the ends of which spring being pressed down, allows " the straw to enter through the openings. To keep up the " supply of the straw weft, I place an assistant at each side of " the loom (a child will be sufficient) and supply each of them " with one or more extra shuttles so that they will always be " ready with a charged shuttle to place on the loom as it is " required. This fabric may be advantageously used for carpets " or floorcloths, window blinds, and similar purposes."

[Printed, 6*d.* Drawing.]

A.D. 1862, August 30.—N° 2409.

GEDGE, William Edward.—(*A communication from François Joseph Ernest Flambermont and Louis Lefebvre.*)—(*Provisional protection only.*)—" The object of this invention is to work by " hand machinery two pieces of cotton velvet on one loom." In a drawing annexed to the Provisional Specification the inventor shows a hand loom suitable for weaving the velvet.

[Printed, 8*d*. Drawing.]

A.D. 1862, August 30.—N° 2411.

MEYER, John.—" Improvements in mechanism for the pro- " duction of jacquard cards, and in the said cards or card bands." The patentee says, " Instead of using the usual expensive plates, " containing several rows of holes, together with the correspond- " ing number of punches, I employ plates having only one line " of holes, with a corresponding row of punches (lace and stud " holes included). I have one plate as die plate, and one corres- " ponding plate as guide plate, placed either horizontally or per- " pendicularly, the holes and punches being as stated, all in one " line longitudinal with the card, extending to the highest point " of numbers required in one row for any fabric. By means of " a line of finger keys, I act through wire or pliable connections " upon pieces acting on the heads of the punches, the keys being " in a single row, and numbered to correspond, each punch and " key acting seperately and independently of the others.

" I fasten the design paper to an endless band of wire gauze or " perforated metal or non-elastic substance, and cause the same " to revolve over rollers or cylinders, one thereof in close " proximity to the keys is provided, with a conical or other " dividing scale, and in front of this cylinder I arrange a row of " moveable indicating points, numbered to correspond with the " keys and punches, and by placing the first indicating point on " the first square in accordance therewith, the punches are brought " forward or moved by their corresponding keys, as shewn by the " indicating points, and then by a press I perforate the card. " By the same motion I carry the cards and place them in position " for the next line of holes, and at the same time move the in- " dicating points to the next succeeding horizontal squares in the " design paper. The operation is then repeated till the whole " card is completed, when for the next card the design cylinder

" is moved, in order to bring the next line of squares opposite to " the indicating points, and then the card is read off on the keys " as before, perforated by the press, and so on for as many cards " as are required for the pattern. To save the trouble of lacing " the cards together, and to make them fit and correspond with " greater accuracy to the studs on the jacquard cylinders, I perforate them in one continuous band for the whole design. " With this view, the band is partially seperated at the proper " distances or widths of the cards, the object being to make " them act as though they were seperate cards laced together. " To carry out this arrangement, I substitute for the die plate " aforesaid a cylinder, equally divided and drilled on its circumference, which cylinders can be made of several parts or sections " made to fit together, and capable of being removed and being " interchanged, or of having a new section or new sections substituted for the same; and I retain the one row of punches, " guide plates, keys, indicating points, design cylinders, and " motions, as in the first arrangement. In immediate contact " with such perforated cylinder I place a second cylinder of equal " diameter and with equal pinions, but provided with sliding " bearings."

" Instead of the perforated cylinder I can use a solid cylinder, " and retain the die plate, leaving the endless card band of card, " paper, flexible metal, or other substance, first passing the same " over the die plate, and then passing through the cylinders, " partially seperating the band into divisions, so as to act a " separate cards on the jacquard cylinder."

[Printed, 2*s*. Drawings.]

A.D. 1862, September 1.—N° 2419. (* *)

WATT, John, and HAVISIDE, Thomas Snaith.—" An improved method of treating flax and other similar vegetable " fibrous substances to be used as substitutes for cotton."

This invention "relates to the obtaining from flax and other " similar vegetable fibrous substances of a material capable of " being used as a substitute for cotton, and consists in subjecting the flax or other similar vegetable fibrous substance to " the action of protocarbonate of soda, or bicarbonate of soda, " or protocarbonate of potassa, or bicarbonate of potassa, or " *soda ash in solution* in water, and heating the whole to the " *boiling point*, and boiling the same until the fibrous substance has been so acted upon that on being washed and treated with an aqueous solution of chloride of lime, or chloride of soda, it is converted into a substance which may be applied as a substitute for cotton."

[Printed, 4*d*. No Drawings.]

A.D. 1862, September 3.—N° 2437.

WALTON, GEORGE.—(*Provisional protection only.*)—" Improvements in circular box looms." This " invention has for its object the prevention of the recoil of the shuttle box when moved by the ordinary apparatus, in order to bring the shuttles contained therein successively into their required positions for being driven across the loom, and the consequent increase in the speed at which the loom may be worked. For this purpose a spring catch is adapted and applied to the ordinary disc box, which spring catch is caused to retain the box in the position into which it is brought by the action of the ordinary apparatus, thereby preventing the recoil from the action of the same."

[Printed, 4*d*. No Drawings.]

A.D. 1862, September 5.—N° 2455.

MARGETSON, JOHN STEWART.—" This invention consists of an improved manufacture of the material used for scarfs or cravats, and which is composed of silk, or cotton, or wool, or other textile materials of various colors and patterns, and of a different pattern or stripe, and colors on each side of the fabric." The patentee claims, " the production, by means of a double series of wefts and one warp, of two patterns of totally different coloring and stripes on a twilled cloth, twilled on both sides, one pattern being on each side of the same scarf or cravat."

[Printed, 4*d*. No Drawings.]

A.D. 1862, September 8.—N° 2471.

WHITEHEAD, JAMES.—" Certain improvements in looms for weaving." The first part of this invention relates to a former Patent, dated June 10th, 1861, N° 1470. The object " is to enable the chain drum mentioned in the Specification of the above patent to be moved in either direction, backwards or forwards, as may be required, and it consists in causing the star wheel, which was formerly fast on the hollow shaft, to

" move loosely; to one side of this star wheel is affixed a spur " wheel, which gears into a wheel fixed on a stud in the frame " side; fast to this last-mentioned wheel is a pinion working into " a carrier, which gears into a pinion which, like the star wheel, " moves loosely on the hollow shaft. It will be evident from this " arrangement that the pinion on the hollow shaft and the star " wheel on the same shaft move always in contrary directions. " The inside bosses of the pinion and star wheel are made in the " form of a catch box, and that part of the hollow shaft between " the bosses is slotted, so as to allow a short key to be moved " either into the one or the other, thus turning the chain drums " backwards or forwards, as required."

The second part of the invention " consists in an arrangement " of mechanism for the purpose of allowing the loom to take up " a variable quantity, such quantity being governed by the shuttle " box, then in working position."

The third part of the invention " relates to those looms to which " weft forks are attached, and it is for the purpose of arresting the " stopping of the loom by the weft fork when the weft is withheld " for the purpose of making a fringe or for other purposes. On " one or more of the shuttle boxes is placed a swell or swells, " which actuate a finger on a rod fixed underneath the lay; to the " other end of this rod is attached a lever, which when the shuttle " box containing an empty shuttle and with the swell attached is " in the right position, presses against the grid, thus preventing " the weft fork from knocking off and stopping the loom."

[Printed, 10*d*. Drawing.]

A.D. 1862, September 11.—N° 2504. (* *)

THOMSON, JOHN.—" Improvements in the treatment of vegetable fibres," consisting in " a combination of certain chemical " and mechanical processes for treating vegetable fibres, whereby " such fibres can be made to resemble the fibre or staple of " cotton, wool, or silk, and become better adapted to the manu" facture of textile fabrics either by themselves or mixed with " other and more costly materials."

It is proposed " to treat the fibres of jute, flax, tows, codillas " Manilla hemp, hemp of all kinds, and other vegetable fibres, " by first immersing them in a solution of caustic soda for the " purpose of softening and splitting up the fibre. The fibres are

" then removed from the solution, and subjected to a centrifugal " or other suitable mechanical contrivance for the purpose of " removing the superabundant moisture therefrom. The fibres " are then steeped in a solution of chloride of lime or some other " suitable chemical solution, for the purpose of improving the " colour and removing any extraneous matters adhering to or " mixed with the fibres, the subsequent effect of the solution being " neutralized by treating the fibres with diluted acids." The fibres are then dried, " and prepared for spinning by the ordinary " or other suitable process."

[Printed, 4*d*. No Drawings.]

A.D. 1862, September 19.—N° 2575.

JACKSON, Robert Raynsford, and COUPE, John.—" Improvements in looms for weaving." The objects of this invention " are to save power, to diminish the friction and strain upon the " warp, and enable the loom to be worked advantageously at a " higher velocity, and all these objects are gained by shortening " conjointly the ' sweep ' or radius of the crank and the length of " the slay sword or radius in which the slay oscillates, so as to " reduce the oscillation of the slay to considerably less extent " than that at present in use."

[Printed, 8*d*. Drawing.]

A.D. 1862, September 23.—N° 2593.

KNOWLES, Thomas, HOUGHTON, James, KNOWLES, William, and HOUGHTON, William.—" This invention relates, firstly, to the box motion, or to a means or method of " working the rising boxes in looms for weaving, and consists in " combining and arranging mechanism or apparatus for that " purpose as follows :—At each end of the loom a tappet is fixed " on the low shaft, which operates upon slide plates or brackets " capable of sliding in fixings attached to the loom framing. " These slide plates support lifting horns or arms, which are " capable of being operated by rods and levers from peg lags " or jacquard apparatus, and caused to take into one or other of a " series of notches attached to or formed on levers, which are " hinged to the framing and connected by rods to the rising " boxes, which are thereby operated and brought into position " according as they are indicated and actuated by the peg lags or " jacquard *apparatus.*

" Secondly, this invention relates to the picking motion, and " consists in combining and arranging apparatus for that purpose " as follows :—An eccentric is fixed on the crank shaft (at each " end of the loom), operating a slide bar or rod, on which is " hinged a pair of horns or arms capable of being operated by " peg lags or jacquard apparatus, and thereby brought into contact with one or other of two nibs or projections formed on a " lever plate hinged to the framing, and according to the action " upon which the picking lever is moved into or out of contact " with the picking noses or picking tappets.

" Thirdly, this invention relates to a lagging-back motion or " means of turning back when the weft breaks or becomes used " up, which consists in combining and arranging apparatus in " such manner that on the jacquard or peg lags being reversed or " turned backward by the attendant operating upon levers and " catches the boxes and picking apparatus will also be simultaneously turned backward, thereby maintaining their relative " positions, so that on finding the broken pick or the place where " no weft has been introduced all the parts will be found in proper " relative position or working order."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1862, September 24.—N° 2601.

FARRAN, John. — " Certain improvements in looms for weav- " ing." The first part of the " invention relates to the picking " motion, and it consists in giving motion to the picking sticks " alternately from each side of the loom by means of picking " tappets loose on the crank shaft, to each of which is cast a " boss in which is a double groove, a swivel key, supported by a " bracket, fits in each groove, and as the crank revolves each " picking tappet is brought alternately to act on the picking " sticks."

" The second part of the invention relates to the machinery for " giving motion to the heddles. The picking tappet at one side " of the loom, in moving to and fro on the crank shaft, as above " described, acts alternately on two levers connected by rods, " chains, or bands to a cross shaft, on which are fixed pulleys for " giving motion to the top roller shaft to which the heddles are " suspended as usual. The cross shaft has thus a vibrating mo- " tion imparted to it, and this vibrating motion may also be " obtained by a rack acting on a pinion on the cross shaft, the

" rack deriving its motion from a wheel driven by a pinion on the
" crank shaft. The weft motion is driven by a tappet on this
" cross shaft or by a tappet on one of the sliding bushes on the
" crank shaft."

The third part of the "invention relates to the taking-up mo-
" tion, and it consists in driving the ratchet wheel, which is
" connected by a train of wheels and pinions as usual to the
" taking-up roller, in the following manner:—To one of the lay
" swords is connected a bracket with a stud; this stud gives a
" vibrating motion to a lever with two catches acting on each side
" of the ratchet wheel in the same manner as the escapement of a
" clock. The bracket of the lay sword is also connected to a
" lever acted upon by the cloth on the cloth beam. As the cloth
" accumulates on the cloth beam the stud and bracket connected
" to the lay sword are gradually brought nearer to the swing rail,
" thus reducing the motion imparted to the ratchet wheel in pro-
" portion to the increasing diameter of the cloth beam; or the
" ratchet wheel may be acted upon by a catch jointed to a lever
" fixed to a pulley on the stud of the ratchet wheel. This pulley
" is turned round by a strap passing over a pulley on the crank
" shaft or otherwise. The motion imparted to the ratchet wheel
" is governed by a shield acted upon by the lever bearing against
" the cloth on the cloth beam, so as to reduce the motion in pro-
" portion to the increasing diameter of the cloth beam."

[Printed, 10*d*. Drawing.]

A.D. 1862, September 29.—N° 2636.

BAUM, HUGO.—(*Provisional protection only.*)—" Improvements
" in the manufacture of moreens and such like fabrics." "The
" object of the improvements is economy of manufacture by the
" introduction of jute yarn therein as a substitute for worsted
" yarn for the weft in the manufacture of such fabrics."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 1.—N° 2660.

LORD, EDWARD.—(*Provisional protection only.*)—This "in-
" vention relates to that part of the power loom known as the
" tappets, secured upon the tappet shaft, and employed for
" actuating the healds, and consists in the peculiar form of
" tappets to be employed for causing the back healds to rise

" higher and fall lower than the front ones, and whereby an " improvement is effected on the surface of the cloth."

[Printed, 8*d*. Drawing.]

A.D. 1862, October 6.—N° 2697.

CLARK, WILLIAM.—(*A communication from Paul Baudet.*)—(*Provisional protection only.*)—"This invention relates to the " application of elastic gussets generally in the manufacture of " men's garments." "The elastic gussets, whatever may be " their nature, are sewn or otherwise connected to the garment in " suitable positions, or they may be woven in the fabric. The " gussets are made with an india-rubber warp, and a weft of silk " known as 'elastic' for boots, and made in pieces of suitable " shape, ready for adjustment; or the warp may be of india-" rubber, and the weft of similar material to that of the fabric in " which the gusset is to be applied; or the elastic may consist " simply of bands or cords, encased or not, and secured by any " suitable means to the garments in the desired positions, so as to " allow of their distending on certain motions of the body, after-" wards returning to their original position and fit."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 8.—N° 2717.

RATCLIFFE, THOMAS.—This "invention relates to such looms " as are employed for weaving 'lenos' or other similar fabrics, " and consists, first, in an arrangement of apparatus for effecting " certain movements of the healds. In weaving 'leno' two or " more sets of healds are required, one behind the other, and the " invention consists in the employment and use of cone pulleys " above and below the healds and attached thereto, and so " arranged that when the front healds are raised the back healds " are lowered in a line with the warp, which is effected by sus-" pending the cone pulleys of the back healds from the pulleys of " the front by means of straps, so that as the strap coils and " uncoils upon the pulleys the healds will be raised or lowered. " By this means the springs to draw down the healds, as hitherto " employed, are dispensed with, except the one attached to the " loose heald, which is made to serve for the back healds by " attaching them together by a wire or cord.

"*A second part of* the invention consists in a simple arrange-" *ment of levers,* actuated by a cam on the tappet shaft, to

" regulate the letting off of the warp, the cam affecting the " temporary yielding of the warp."

[Printed, 10*d*. Drawing.]

A.D. 1862, October 15.—N° 2779.

TAYLOR, Jacob.—These improvements relate to temples for looms. The patentee says,—" I give a to-and-fro motion to " revolving combs or teeth working loosely in a stationary eccen- " tric slot, so that as they revolve they project one after the other " beyond the periphery of the roller which contains them, and " thus catch the fabric as it is woven, and keep it extended to " its proper width, and when necessary, as in woollen fabrics, " keep it stretched also in the longitudinal direction. Each set " of combs or teeth after having held the fabric in its extended " position until the succeeding set takes hold, recedes one after " the other into their slots or grooves. Or, as a modification " thereof, I place a ring with arms or projections working loosely " on a roller or shaft, and at the end of each arm or projection I " bolt or otherwise fix a knife or comb, and cause them to project " beyond the periphery of a shell or case working eccentric to the " said shaft or roller, and come in contact with the fabric " alternately as each of them protrudes or projects beyond the " surface of the shell or case, and thus keep the fabric properly " extended."

[Printed, 10*d*. Drawing.]

A.D. 1862, October 15.—N° 2783.

POTENZA, Pasquale. — "The extraction, preparation, and " spinning of the silky fibre contained in the bark of mulberry " trees, and the manufacture of the same into textile fabrics."

"The bark requisite for this purpose may be obtained in very " large quantities without detriment to the mulberry trees," " 100 lbs. weight of such bark yielding nearly 15 lbs. of the " silky fibre or ' vegetable silk.' The bark, after careful separa- " tion from the wood, is subjected to a process of thorough desic- " cation, which process should take place very gradually, by pre- " ference in the open air, and under very moderate action of the " sun, as otherwise the bark would rot, forming the so-called " 'maca,' and the fibrous substance which it is desired to extract " would be totally destroyed. When the bark has been thoroughly " dried, the fibrous substance, which will then be found in the

" same in the form of agglomerated filaments of an exceedingly " fine texture, is carefully extracted by separating from it all " extraneous matter that will be found adhering to it, such as " the epidermis, the green bark or rind resembling a skin, and " the liber, whenever this is found next the sap (as it is not " always there). This separation of the silky fibre from the " various layers of bark, and from all other substances by which " they are held cemented together to a certain extent, is effected " most readily by boiling the bark, either in water alone, or with " the admixture, by preference, of a mineral acid, or of a vegetable alkali, combined with the base of an oil or fat; or I " sometimes employ a mineral alkali, or even vegetable acid for " this purpose."

"The masses of fibre are then opened out, either by the hand, " or by any machinery or apparatus suitable for the purpose, the " separation being effected by preference in a lateral direction, or " across the fibres, which have already, to a certain extent, a " parallel position to each other, and which would nct be so effectually separated if operated upon in the direction of their " length." The fibres may then be " subjected to the operation " of a carding engine of similar arrangement to those employed " for carding the cotton fibre." The vegetable silk is then formed into "slivers" by "doubling and stretching," "so as to " effect the more or less perfect parallelism of the fibres, and is " spun into thread of any degree of fineness by means of any of " the known processes and apparatus employed for spinning the " cotton fibre." "The silky thread thus obtained is of an " exceedingly strong, elastic, and glossy nature, partaking in a " high degree of the qualities of the best silk, and it may there" fore be employed with great advantage, particularly for forming the woof in silken fabrics, as also for being manufactured " into textile fabrics, either by itself or in combination with wool, " cotton, or any other fibrous material."

[Printed, 4*d.* No Drawings.]

A.D. 1862, October 16.—N° 2799.

CASH, JOHN, and CASH, JOSEPH, the younger.—(*Provisional protection only.*—This "invention consists in manufacturing " *valentines* in silk, or in a combination of silk and cotton, of the " *various colors* required, according to the design or pattern to be " *produced, in* an ordinary ribbon loom."

[*Printed, 4d.* No Drawings.]

A.D. 1862, October 21.—N° 2828.

TRISTRAM, William.—(*Provisional protection only.*)—This "invention for preparing and dressing yarn relates particularly "to such yarn as is prepared for warps to be subsequently "printed." The inventor describes his improvements as follows:—"The yarn is first to be bleached in the bundle, then "wound by means of 'swifts' in the warping frame on the "warper's bobbins, then from the bobbins on to the back beams "in the beam warping mill, or employed for beam warping for "'taped' or dressed work. Next I arrange any number of these "back beams in one end of a dressing machine, called a kreel, "and run the yarn through a weaver's reed on to a weaver's beam "at the opposite end of the machine. For dressing the yarn I "employ a circular brush and hot cylinders or chambers in "combination with the above-named machinery."

[Printed, 4*d.* No Drawings.]

A.D. 1862, October 21.—N° 2834.

COOKE, John Thomas.—"Improvements in battens for weaving." The patentee says,—"My improvements consist in the "employment of one slide bar or carrier, on which are fitted "pegs or bolts for carrying the shuttles from side to side of their "work, as hereafter described. On the bed of the batten I fit a "slide bar or carrier, which works in grooves or otherwise, so "that it may slide backwards and forwards. On this slide are "fitted pegs or bolts working through eyes to allow the pegs to "rise and fall, and that in a straight line. On each of these pegs "a stud is fitted, which passes through the slide bar and works "in a groove or template fixed on or formed in the bed of the "batten, of such shape as to give the motion I desire to carry the "shuttles through their work. The slide has slots cut in it for "the studs, which are fitted on the pegs to work through; these "studs fit and work in the grooves on the bed of the batten, so "that when the slide bar is moved to and fro each of the pegs "receives an up and down motion."

[Printed, 10*d.* Drawing.]

A.D. 1862, October 22.—N° 2844.

FIELDING, Enoch.—(*Provisional protection only.*)—"Improve-"*ments in the manufacture* of healds, and in the machinery "employed therein." The inventor makes use "of heald yarn "of the usual description, but the eye of the heald, instead of "being formed by looping the yarn, is produced by means of "two small rings of metal or other material, which are threaded "on the doubled yarns, and placed at the requisite distance apart, "so as to leave the eye between them." The machinery employed in manufacturing the improved healds "consists of a "reel equal in circumference to twice the depth of the heald, and "of any convenient length according to the width of the loom in "which the heald, when made, is to be used. The heald yarn "is then wound on this reel (divided equally along its length) "to suit the distance required between the eyes of the healds. "One of the staves of the heald is then passed through the reel "and secured to the yarn, the yarn is then slackened on the "reel, and two rings are threaded on to each double yarn; the "second stave is then secured to the yarn, and the rings are then "brought into their proper positions by rods or wires. The heald "thus partly formed is now removed from the reel, and the whole "or the centre portion is dipped into hot size, which causes the "yarn to expand, and retains the rings in their proper positions; "or the rings may be secured in their proper positions by being "compressed on the yarns."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 24.—N° 2866.

GIMSON, JOSIAH, and FLUDE, ROBERT.—(*Provisional protection only.*)—The inventors say,—"Our invention of improvements in looms for weaving narrow fabrics relates to those "kinds of looms in which the shuttles are thrown either by "toothed pinions working in racks or by what are known as peg "motions.

"Our first improvement relates to a novel mode of actuating "the drivers, whereby the shuttles are passed through the sheds, "and consists in actuating these drivers by means of levers "which are vibrated by causing their inner ends to work in a "cam groove formed in a barrel, drum, or cylinder mounted on "any convenient rotating shaft belonging to the loom."

"Our next improvement relates to the peg motion, and, "instead of fixing the pegs immoveably in the drivers, they are "*made moveable* therein in a vertical direction, so that they may "*be moved up* and down for the purpose of being inserted into

" or withdrawn from the holes in the shuttles; to this end the " pegs are fixed in blocks, which work in grooves or guides made " in or attached to the drivers. At the back of these peg blocks " are fixed studs, which work in longitudinal grooves cut in the " plank, so that as the drivers are moved to and fro in the breast " plank the peg blocks will be made to rise and fall according to " the form of the groove made in the plank."

[Printed, 4*d.* No Drawings.]

A.D. 1862, October 24.—N° 2868.

WRIGHT, JAMES.—(*A communication from Clement Voisin and Alexis Voisin.*)—(*Provisional protection only.*)—" Improvements " in the construction of seamless stays." The inventor says:— " I substitute for the present materials forming the lining and " facings of woven corsets a material of elegant reps, similar to " those used in making Gobelins designs; from this lining or " covering, which has the warp removed, I weave the woof in " wool of all sorts of textile materials, and of different colours. " These new stays will enable the wearer to do without using " flannel between the body and the stays. Stays formed of wool " I use for wear in winter, but for spring and summer I weave " them so as to have the same lining or covering whatever may " be the woof. The double parts are woven of different colours " from the single parts. By the arrangement above-mentioned " I am enabled to make a seamless stay without having a wrong " side, and having the same or different colours on each."

[Printed, 4*d.* No Drawings.]

A.D. 1862, October 25.—N° 2880. (* *)

GHISLIN, THOMAS GOULSTON.—" Improvements in the treat- " ment and utilization of certain foreign plants for the obtaining " of useful fibres therefrom."

" This invention relates to the obtaining from a class of bulbous " plants of the liliaceous and amarillidaceous orders fibres suitable " for spinning into yarn, and for being converted into paper " pulp."

The patentee says,—" In order to obtain the fibre suitable for " spinning, I take the bulb (if in a fresh state) and boil it in " water, or water rendered slightly alkaline; then by means of " *pressure or a centrifugal* apparatus I expel the liquid with "whatever has been dissolved, and obtain the fibre in a matted "state. I next wash the fibre, and for the purpose of opening "it out, subject it to the action of steam at a suitable pressure, "after which I dry the fibre by exposure to the air, or in a heated "atmosphere. The fibre thus obtained I propose to card, draw, "and spin in the usual way. When the bulb is dry I strip off "the outer cuticle, and, by preference, boil the bulb in an alkaline solution, and I afterwards neutralize the alkali by weak "acid. I next subject the fibre to a bleaching process, using "either gaseous chlorine or chloride of lime, or any other material "commonly employed for this purpose. I then remove the "bleaching agent by washing, and I afterwards remove the "moisture from the fibre by means of pressure or centrifugal "apparatus; I then again wash the fibre in water, open it out "by steam, and dry by exposure as in the former instance."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 28.—N° 2902.

SMITH, George Hedgcombe.—(*Provisional protection only.*) —"This invention consists in combining metallic and fibrous "strands together for the purpose of forming an elastic fabric "suitable for making elastic hoops for dresses."

"In carrying out the invention the metallic and fibrous strands "are arranged side by side in the form of a warp, and are woven "into a fabric of the desired width by the introduction of ordinary weft threads."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 29.—N° 2914.

LISTER, Ishmael William, BOTTOMLEY, James, and BOTTOMLEY, William. — (*Provisional protection only.*)— These improvements relate to the letting-off and taking-up motions of looms. The inventors say:—"We propose to have for the "letting-off motion a warp beam as usual, and instead of applying the friction to the warp beam we employ three or more "rollers, which take the warp from the warp beam, and the "friction is applied to one or more of these rollers. The taking-"up motion we propose to make as follows:—The cloth comes "over the breast beam in the usual way, when it is taken hold of "by three or more rollers (geered and pressed together and

" driven from some convenient part of the loom) which take the " cloth as it is woven, and wind it on the cloth roller."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 29.—N° 2918.

GEDGE, William Edward.—(*A communication from Eugène Besge.*)—" Improvements in looms for weaving." " By this in- " vention an arrangement of continuous shuttle boxes is used, " which consists in occupying as many shuttles as there are diffe- " rent colours to be used in the manufacture of a fabric; this " cylindrical box turns by toothed gearing each time a change of " shuttles is required, that is to say, when the colour of the shoots " should vary. This movement is produced by a counter or indi- " cator set beforehand according to the design of the fabric; this " counter indicator or meter may be placed right or left, or even " be double. The batten or lay is furnished with a cylinder; this " cylinder is composed of the boxes in which are the shuttles, " and it turns on a shaft fixed at its centre on swords. The " swords of the batten are united by a pin, which permits free " oscillation. The upper part of the batten comprises the reed or " comb, the boxes, and the platform on which rolls the shuttle. " The endless chain, with eccentrics of different heights for the " movement of the healds, receives motion from gearing fixed on " the driving shaft of the loom. Several of these chains may be " adapted to a single machine. The two eccentrics of different " heights are furnished with a gorge or groove, which becomes " continuous by the coming together of the two pieces. In lieu " of a ratchet wheel an endless chain may be used composed of " rings united by pins; by this means it is only necessary to add " rings or links to lengthen the chain to the requirement of any " design. A blade or thread cutter, in form of scythe, oscillating " against another fixed cutting piece forms a shears, and cuts " the thread after each ply or passage of the shuttle; this thread " cutter is fixed at the back of the batten or lay. A metalic " brush fitted outside the lists acts so that at each change of " shuttle the end of the cut thread is out of the passage of " the following or succeeding shuttle."

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1862, October 29.—N° 2922.

STOTT, Frederick Luke. — These improvements relate to *warping mills.* The patentee says:—" My invention consists i "curving the bars in which the eyes of the heck are secured, and "in turning each eye to such a position that the axis of the hole "forming the eye will be in a radial line drawn from the centre "of the radius to which the heck is curved, so that the line of the "axis of each eye will agree as near as practicable with the direction of a horizontal line drawn from the bobbin in the creel, or "from a point vertically above or below the bobbin to the eye in "the heck."

"My invention also consists in curving beer hecks which are "placed between the eye hecks and the 'pot rollers,' to correspond "with the curvature of the eye heck."

[Printed, 8*d.* Drawing.]

A.D. 1862, October 29.—N° 2923.

NEWHAM, HENRY PAUL FRYER. — (*Provisional protection only.*) — "Improvements in the manufacture or production of "reversible shawls." The inventor manufactures "an improved "shawl, in which one, two, or more falls, lappets, turnovers, flaps, "or pieces are combined with the body or main piece of the "shawl, over each side or surface of which the said falls, lappets, "turnovers, or flaps can be turned at pleasure from the top of "the shawl, each one as turned over modifying or altering the "appearance or design of the shawl, and by having the main "piece and the falls, lappets, turnovers, flaps, or pieces presentable on both sides, the appearance or design of the shawl may, "(by reversing it) be further varied, according to the side presented to view."

[Printed, 4*d.* No Drawings.]

A.D. 1862, November 3.—N° 2972.

CHEVERON, PIERRE FRANÇOIS CLÉO, and EICHENBERG, EUGÈNE CACHUS.—(*Provisional protection only.*)—This invention relates to a method of manufacturing Indian shawls, carpets, and other descriptions of figured fabrics. The inventors "dispense "with a shuttle and substitute for it needles and hooks, the "combined action of which, facilitated by the play of supplementary weighted cords and by a comb, the teeth of which are "free at top, produce the fabric."

The needles are arranged side by side in a slide box; they have *eyes at the point*, and move horizontally in the direction of the *warp threads*, providing the hooks with the thread for the weft.

There are as many series of needles as there are colors in the fabric. To each series there is a hook. The threads for the needles are held in tubes arranged above them. The hooks are placed in a carriage which moves up and down, and they are turned by a rack and pinions; "the function of the hooks is to " seize the weft threads which are brought to them by the needles " of each series, and to produce on the breadth of the series of " needles to which they correspond the work done by the shuttle " in the ordinary loom." Between the healds and the comb are placed supplementary cords carrying weights; "when the cords " rise the weights enter between the warp threads and separate " them sufficiently to allow the hooks to pass between them. " Motion is communicated to the machine by steam or other " power, or by hand."

[Printed, 6*d*. Drawing.]

A.D. 1862, November 4.—N° 2978.

McKEAN, John, and GREENALL, Thomas.—"This invention " relates to the application or employment and use of a novel " compound or composition for the purpose of sizeing or dressing " and preparing warp yarns for the loom. The basis of this compound " or composition is what is technically or commercially " known as 'China clay,' or other similar siliceous and aluminous " earths, and such clays are rendered available for use in the " treatment of warp yarns by admixture with farinaceous or " amylaceous matter obtained from wheat, rice, potatoe, sago, " tapioca, salop, or from any other convenient or practical source. " Such farinaceous and amylaceous matters having been previously " treated with acid, such as sulphuric, nitric, or hydrochloric acid, " or mixtures of the same, and afterwards subjected to a temperature " varying from 100° to 300° Fahrenheit, according to the " product it is desired to obtain."

[Printed, 4*d*. No Drawings.]

A.D. 1862, November 4.—N° 2981.

PLACE, Joseph.—This "invention relates to that part of the " power loom known as the 'treading motion,' by which the rise " and fall of the healds is effected.

"The improvements consist in the novel employment and use " of a double set of 'treddles,' that is, one set hinged to the back

" rail of the loom, and projecting forwards, and the other set of a " corresponding number hinged to the front rail, their ends projecting towards the others, so that such extremities may be " coupled together by a link near the middle of the depth of the " loom. The treddles so constructed are to be actuated by " 'tappets' of a suitable and peculiar form, and of less dimensions " than those hitherto similarly employed, and so calculated as to " render the 'shedding' motion more positive."

[Printed, 10*d*. Drawing.]

A.D. 1862, November 8.—N° 3016.

KILSHAW, HENRY, and LORD, EDWARD.—This "invention " relates to that part of the power loom known as the tappet " secured upon the tappet shaft and employed for actuating the " healds, and consists in the peculiar form of tappets to be " employed for carrying the back healds to rise higher and fall " lower than the front ones, and whereby an improvment is " effected on the surface of the cloth."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1862, November 8.—N° 3023.

MELLODEW, JAMES, MELLODEW, THOMAS, and KESSELMEYER, CHARLES WILLIAM.—This "invention refers to the " apparatus for making the shed of looms. To effect this operation" the patentees "use two elements, the one consisting of a " tappet or series of tappets, and the other of a pattern chain or " equivalent apparatus, the latter of which determines whether " the tappets shall be 'risers' or 'sinkers.'"

[Printed, 8*d*. Drawing.]

A.D. 1862, November 10.—N° 3028.

BERRISFORD, SAMUEL, and AINSWORTH, WILLIAM.—The patentees say,—"Our improvement is applicable, first, to looms " in which moveable shuttle boxes are employed, and it consists " in the following improved combination of machinery for actuating the shuttle boxes:—A pulley is mounted on a stud fixed at " the bottom part of the framing of the loom, and under the " shuttle boxes; this pulley is connected to the shuttle boxes by " means of a chain, or in any other convenient manner. This " pulley has a backward and forward intermittant motion given

" to it (for the purpose of raising or lowering the shuttle boxes
" by means of steps or projections placed on the sides of the
" pulley, which is actuated by means of a double-pronged fork)
" suspended above the pulley at the extreme end of the horizontal
" arm of a bell-crank lever, which lever causes the fork to rise
" and fall every alternate pick of the loom by means of an eccen-
" tric on the tappet shaft. This vertical motion of the double-
" pronged fork is for the purpose of taking hold of steps on each
" side of the pulley, and causing it to revolve (when permitted to
" do so by the pattern chain and levers connected therewith) as
" far backward or forward as will be required to bring any par-
" ticular shuttle into use. The double-pronged fork has also a
" lateral motion given to it, which motion is governed by a
" pattern chain working in connection with a horizontal lever
" (placed parallel with the horizontal arm of the bell-crank
" lever); one end of this lever is connected to the double-pronged
" fork, and it is caused to move laterally as far as there are steps
" on the pulley by means of a swell fixed on the eccentric, which
" swell comes into contact with the lever just as the fork is begin-
" ning to fall and leaves it just as the fork is beginning to rise.
" The other end of this lever is attached to a vertical rod in such
" a manner as to impart an up-and-down motion to it. The top
" part of this rod moves in front of a fixed bracket placed at the
" back end and near the top of the frame of the loom. In this
" bracket are placed as many square-headed needles as there are
" shuttles to be used. The square part of these needles rest on a
" ledge, and the round parts pass through holes made for them
" in their frame; they project as far through as will admit of
" spiral or other springs to be attached to them, for the purpose
" of causing them to recover their position when a change of
" shuttle takes place. In front, and opposite the points of the
" needles, is a cylinder, which is mounted on the vertical arm of
" the bell-crank lever; round this cylinder is carried backward or
" forward an endless chain, composed of strips of any suitable
" material, connected together by rings or in any other convenient
" way. In these strips or cards, and lengthways thereof, are cut
" slots as long as will admit all the points of the needles in the frame
" to pass freely through when no change of shuttle is required;
" on the outside of these cards are cut indentations for the pur-
" pose of keeping in their place when wrapt round small strips of
" tin or any other suitable material, which strips of tin will inter-

" cept any of the needles that may be selected, and prevent them " passing into the cylinder. The needles so prevented from " entering the cylinder will be pressed forward, and the square " part will enter a diagonal groove in the vertical rod during the " time the rod is lifted up, and will prevent the vertical rod from " falling to its lowest point at any elevation indicated by the " needles last brought into use. The vertical rod being thus " intercepted, will cause the double-pronged fork to fall opposite the " step that will bring the required shuttle into use by the needle " so pressed forward. The needle last pressed forward will remain " in its place and continue to prevent the vertical rod from falling " so long as the pattern that is being woven may require that " particular shuttle. The needles are retained in their places till " another change is required by means of a retaining catch, which " falls into a V-shaped groove when the needle is pressed forward. " On the top of the square end of the needles are provided small " shoulders, which lift the retaining catch as the needle is being " pressed forward, and allows the one last retained to escape, and " takes hold of the one last pressed forward.

" Our second improvement consists in connecting the ma- " chinery by which the healds are worked to the machinery above " described for working the shuttle boxes. In performing this " part of our invention we apply adjustable studs to the step " pulley above referred to, and these studs act upon a lever or " levers connected to the pattern chain or other mechanism em- " ployed for working the healds, and move it so as to produce " the pattern required.

" The third part of our invention consists in an improved com- " bination of machinery for letting the yarn off the warp beam. " Above the warp beam is a rod supported in elbow levers, and a " second rod bears on these levers ; the warp passes over the first " rod, and to the second rod the chain for weighting the warp " beam is connected. When the warp is too tight, the friction " chain is slackened to let off the requisite quantity of warp."

[Printed, 10*d*. Drawing.]

A.D. 1862, November 10.—N° 3034.

GHISLIN, Thomas Goulston.—" Improvements in the treat- " ment of certain foreign plants, and in the application of the " fibres derived therefrom."

This "invention relates to the treatment of the following South " African plants, their families and species, viz., oxalideæ, hibiscus, " and other malvaceæ; virgilia, bryonia, guaphalium, ficoideæ " salicornia, euphorbiaceæ, urticeæ, ficus, proteaceæ, cycadeæ, " phœnix reclinata; indeæ, including Watsonia humilis, and " others; gladiolus, autholyza, lapeyrousia, barbiana, witsenia, " tritonia, and sparascis; juncaceæ, serratus and trista, various " restiaceæ, cyperaceæ, and gramineæ; holeus saccharatus, maze, " and stipa."

From these plants the patentee obtains "useful fibres of various " characters or qualities, which may with advantage be applied to " such purposes as hemp, flax, cocoa fibres, hair, and whalebone " have hitherto been employed for."

[Printed, 4*d.* No Drawings.]

A.D. 1862, November 12.—Nº 3046.

SOCIN, Christoph.—"Improvements in looms for weaving " ribbons." The "improvements consist in a novel construction " and arrangement of shuttle frame and shuttles, according to " which the guide grooves for the shuttles, and the shuttles are " curved in a circular line, by means of which considerable " economy of space is effected and other advantages obtained."

[Printed, 10*d.* Drawing.]

A.D. 1862, November 12.—Nº 3052.

GRAEMIGER, Aloise.—"This invention has for its object im" provements in looms, and consists in arranging a jacquard " apparatus in a loom in such a manner as to cause the shuttle " box to rise and fall in place of making it raise and lower the " threads of the warp."

[Printed, 10*d.* Drawing.]

A.D. 1862, November 13.—Nº 3053.

TWADDELL, Alexander.—"This invention relates to im" proved arrangements for dressing or sizeing warps, and designed " to admit of differently colored warps being simultaneously " dressed without the colors injuring each other, and in a more " convenient and satisfactory manner than hitherto.

"The improved arrangements are applied to the entering or " dressing end of the well-known 'tape' machine or warp-size

" ing apparatus. One portion of the warps drawn off one or " more beams, as the case may be, after passing between a pair of " entering rollers, descends in the usual way under and round a " roller immersed in the usual starch or size box, and then passes " up and between the first pair of squeezing rollers, and onwards " between the second pair of squeezing rollers or 'finishers.' " The other portion of the warps, which it is wished to keep " clear from the color of the first portion, is made to pass from " the entering rollers in an upward direction to a separate starch " or size box mounted upon brackets directly over the ordinary " starch or size box." " From this separate starching or sizeing " box the upper portion of the warps is made to descend and " combine with the lower portion of the warps, either before or " after they pass through the finishing squeezers."

[Printed, 8*d*. Drawing.]

A.D. 1862, November 18.—N° 3097.

HARRISON, Charles Weightman.—" This invention relates " to certain peculiar constructions and arrangements of apparatus " for giving the neceesary motions to the various moving parts " of looms by pneumatic pressure."

" First, the sley beam is actuated by means of connection with " the piston rod of a cylinder, which communicates with a reser- " voir of compressed air, the air being admitted into the cylinder " by suitable arrangements of valves, as in the ordinary steam " engine.

" Second, the sley beam is constructed so as to move in a hori- " zontal plane, each end working in a groove formed in the " cheeks of the frame, and to avoid friction it is carried on wheels " or rollers.

" Third, by means of suitable connections with the piston of " the air cylinder which actuates the sley beam, the heddles " receive their proper motions.

" Fourth, motion is given to the shuttle by the direct action of " compressed air, without the intervention of pickers or drivers, " as heretofore. This is effected by forming an aperture or " chamber at each end of the sley beam, wherein the shuttle can " wholly or partly enter, and by making an aperture in each " cheek of the frame, to which, by proper connections, compressed " air is conveyed. As these apertures are brought opposite to

" each other by the motion of the sley beam, a suitable arrange-
" ment of valves is made to admit compressed air, which shoots
" the shuttle."

To reduce friction in the motion of the shuttle the patentee forms the race of glass, porcelain, or other similar material, or he cases the shuttle therewith.

" And, fifth, the motions for letting off the warp and winding
" off the fabric are obtained by suitably formed connections with
" the piston of the air cylinder that actuates the sley beam."

[Printed, 8*d.* Drawing.]

A.D. 1862, November 19.—N° 3112.

HARDMAN, Robert.—" This invention relates to the picking
" motions of looms, and consists in the following improved com-
" binations of parts for effecting the same. To the tappet shaft
" of the loom are connected two bowls, acting alternately on two
" picking levers, which are connected by straps or otherwise to
" the picking sticks for driving the shuttle from one side of the
" loom to the other alternately; or when shuttle boxes with two
" or more compartments are used, the shuttles may be picked in
" the required succession by connecting the picking levers to a
" rod, which is moved sideways by an eccentric, actuated by the
" tappet or crank shaft of the loom; by this means the picking
" sticks at each side of the loom may be worked one, two, or
" more times in succession."

Another part of the invention " consists in making the part of
" the picking lever on which the bowl or wiper acts capable of
" being removed and replaced by a fresh piece when worn or
" injured."

[Printed, 10*d.* Drawing.]

A.D. 1862, November 21.—N° 3127. (* *)

TOWNSEND, Joseph.—Preserving cotton, flax, hemp, and other materials, whether in the raw or manufactured state, from mildew or dry rot, " or from partial or complete decomposition
" when kept or stored." These objects are effected by the application to such materials of " solutions of the compounds of chlo-
" rine with magnesium, calcium, and sodium, or with one or
" more thereof, and in conjunction or combination with the
" chloride or the sulphate of zinc or of tin, or with the chlorides

" or the sulphates of other metals. Or in some cases there may " by this invention be used solutions of sulphate of magnesia in " conjunction or combination with the other sulphates of the " metals or of the alkalies, or in conjunction or combination with " the chlorides of the metals. The quantities of the chlorides of " magnesium, calcium, or sodium, either alone or mixed, or of " the sulphate of magnesia," to be employed in conjunction or combination therewith, may vary according to the nature of the substances to be treated. The substances may be immersed in the solutions, or moistened or damped with them; or the solu- " tions may be applied in any convenient manner."

[Printed, 4*d*. No Drawings.]

A.D. 1862, November 22.—N° 3143.

DE BERGUE, Charles. — These improvements relate to machinery for the manufacture of metal reeds. The patentee says,—" My improvements have reference, firstly, to the application " of files for equalizing, rounding, and smoothing the edges and " surfaces of flattened metallic wire as produced by or after it has " come from the operation of ordinary flatting rollers, and con- " sists of a machine or apparatus which I call a filing machine, " and which embraces the following destinctive features, namely, " the so grinding the wire while being wound off, or in its pas- " sage from one drum to another, as to give to it a twist or " partial twist, instead of its running or passing simply flatways " from one to the other. Also the mounting a line or series of " files with their surfaces, not strictly, but generally in one plane " above, or to act in one direction upon the wire, and a corre- " sponding series with surfaces in a generally parellel plane below, " or to act in the opposite direction; (these two series I call a 'set' " of files). Also the so mounting the files in double 'sets,' that " either set may be brought into operation accordingly as the wire is " being wound in one or in the other direction between the drums, " one set having the cut arranged for cutting in one direction, " and the other set for cutting in the opposite direction. Also " the so mounting the files as to permit of adjustment, both " separately or in series for regulating the amount of pressure " or action against the wire. Also an adjustment for shifting or " varying the position of wear of or upon the files.

" My improvements have reference, secondly, to the giving a " finishing polish to the edges and surfaces of the flattened wire

" after it has been properly shaped or treated by the filing machine, " and consists of a machine or apparatus which I call a polishing " machine, and which embraces the following distinctive features, " namely, the so guiding the wire as to produce a twist or partial " twist in its passage, as set forth in respect of the filing machine. " Also the mounting a suitable polishing material, such as emery " cloth, upon a board, or table, or presser, for pressing upwards " or in one direction upon the wire, or against which the wire " may be pressed, and the mounting a suitable polishing material " (as above) upon or in a presser or frame, having a yielding " bottom, preferably of leather or of cloth, and containing shot " or some approximate equivalent for a fluid, so as to yield, press " upon, and produce the polishing effect by means of the emery " cloth or polishing material during the passage of the wire, as " above set forth, by pressing downwards or in the opposite " direction. [The substitution of an actual fluid for either one " or both of the two pressers, as mentioned in my Provisional " Specification, I do not now consider to possess any advantage.] " Also the providing the two pressing apparatus, either jointly or " separately, with a traverse or motion, so that the wear may not " be continuously over one line or position, but may be changed. " Such change may be either continuously going on or inter- " mittent.

" My improvements have reference, thirdly, to the making up " the prepared wire into reeds, and consist of a machine or appa- " ratus which I call a 'setting machine,' and which embraces " the following destinctive features, namely, the working or giving " motion to bobbins and fliers by means of toothed heart " wheels or otherwise, so as to turn at a speed varying during the " complete turn or rotation. Also the working to time a driver " or beater, for cutting off and beating up the dents to guage, so " as to act during the retarded or slackened portion of the com- " plete rotation of the bobbins. Also the causing the bobbins " and fliers to revolve in opposite directions, so as to admit the " use of larger bobbins, and obtain a better angle for, or more " direct line of the band or binder between the bobbin and its " flier. Also arrangements for regulating the number of rotations " of the bobbins and fliers relatively to or in respect of each " separate dent to be placed and bound between the 'ribs' or " framing of the reed. Also the constructing the 'setting' " machine with a self-acting arrangment for stopping its motion

" when the prepared wire, which is fed into it, is faulty, by reason " of a kink, or when a knot occurs as at the end of each length " of wire. Provision is made for working the machine either by " hand or power."

[Printed, 3*s*. Drawings.]

A.D. 1862, November 25.—Nº 3158.

ROBERTSHAW, THOMAS, and ROBERTSHAW, LUTHER. —(*Provisional protection only.*)—This " invention consists in the " substitution of jute or hemp for worsted, to form the weft in " the manufacture of the fabrics technically called moreens."

[Printed, 4*d*. No Drawings.]

A.D. 1862, November 26.—Nº 3169.

ASPELL, JAMES, and BOOTH, EDWARD. — (*Provisional protection only.*) — " This invention relates to that portion of the " power loom known as the 'letting off' motion, and is designed " for the purpose of regulating the tension and the 'letting off' " or delivery of the yarn. The improvements consists in applying " ing or employing the movement or vibration of the woven cloth " (caused by the 'shedding' and 'beating up' motion,) to the " 'letting off' or delivery of the warp by any mechanical arrangement " ment interposed between the woven cloth and the 'warp " beam.'"

[Printed, 4*d*. No Drawings.]

A.D. 1862, November 29.—Nº 3199.

BLACKBURN, THOMAS, and KNOWLES, MARK. — (*Provisional protection only.*)—The inventors say,—" Instead of the " ordinary tappet for shedding in looms we place upon the crank " shaft a tappet so constructed as to lift only once for every two " revolutions of the crank shaft, and by connecting a lever therefrom " from to the heald roller, boss, or to any other fixing upon the " heald roller, by means of straps or other suitable means, we " raise or depress the healds, and thereyy obtain the shed, and at " the same time by placing another lever in a vertical position we " are enabled to regulate a fixing on the picking stick shaft, so " that a boss or projection fixed upon the fly wheel would in " working come in contact with the said fixing on the picking " stick shaft alternately at the opposite sides of the loom, thereby

" giving motion to the picking stick, and throwing or picking the " shuttle. Instead of the ordinary fixing for tappets and wheels " for working so as to keep proper time we make a boss, on the " face of which we cut teeth at uniform pitches, and by casting " corresponding teeth on the boss of the wheels or tappets, and " then attaching such boss firmly on the shaft, we can by means " of a nut force the wheels or tappets against such fixed boss at " any given angle, regulating thereby the time of shedding and " picking. And instead of the ordinary arrangements for shedding, more particularly in looms in which work is performed " requiring more or less than four heald staves, as in spots and " twills, we place two quadrant levers above such heald staves, " and two below them, connecting the levers above with those " below by levers or cords (either together or singly) on the outside or inside of the loom framing, and by attaching to such " levers or cords hooks to be operated upon, first by projections " in a revolving cylinder or barrel, and afterwards by a compound " lever, we depress or raise the heald in such a manner as the " projections or cylinder indicate."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 1.—N° 3217.

FLUDE, Robert.—This "invention of improvements in looms " for weaving narrow fabrics relates to the means employed for " driving the shuttles in such looms, which consists in the employment of one shuttle driven with two upright levers (for " each shuttle) mounted upon it; the upper ends of such levers " carry pegs which enter holes in the front of the shuttle (one at " either end), or the pegs may be fixed in the shuttles and the " levers be provided with holes or slots taking thereon. One or " other of the driving pegs and levers is always in connection " with the shuttles, which connection may be utilized to prevent " the shuttle dropping in front, and which therefore, in such case, " may be shorter than the shuttles usually employed. The levers " may be on fulcra near the middle of their length or at their " ends, and mounted on the shuttle driver or traversing bar, " which traverses quite across the fabric being woven. These " levers bear, throughout their traverse, on fixed surfaces which " control their position and keeps each lever in an upright or " nearly upright *position*, except when it is passing across the

" fabric. As each peg lever approaches the fabric being woven, " the fixed surface, which before held it upright, now causes it to " pass from the upright to an inclined position, so that the peg " is withdrawn from the shuttle and drops to a level that will " allow it to pass below the lower threads of the shed."

"Instead of the oscillating driving levers and shuttles being " furnished with pegs entering holes in the shuttles, or pegs in " the shuttles entering holes in the driving levers, the ends of " the latter may be plain and simply received in chases or grooves " in the shuttle."

[Printed, 10*d*. Drawing.]

A.D. 1862, December 1.—N° 3223.

OLDFIELD, BENJAMIN.—" Improvements in looms." The patentee says: — " My invention consists, firstly, in working a " series of shuttles that rise and fall with one rack and two pairs " of pinions to each space. Each pair of pinions is fixed on a " separate pin, the pins being placed upright one on each side of " the space; the rack is placed in the back part of the batten " that caries the slay. The bottom pinion works in the rack " which gives the motion, the other pinion being carried up to " the required height. The shuttles have similar racks fixed in " their backs, consequently a rise or fall action, as the case may " be, will bring the required row of shuttles to the pinions; the " bottom rack is then drawn along, thus causing the shuttles to " pass through the opening.

" Secondly, my invention consists in working a series of shuttles " that rise and fall with one pair of pegs or levers to each space; " each lever has a hole through it, and a wire is passed through " this hole to admit of the lever being drawn along it. Below " this wire rod is placed an iron plate, slotted out for the bottom " part of the lever to work in, which imparts motion to the lever. " Between the wires and the slotted plates an iron slide runs on " rollers, studs being fixed in the slide to actuate the lever; this " slide being drawn along, the studs catch one of the levers, and " carry it along the slot in the bottom plate, throws the lever off " the slide, and at the same time another lever takes its place. " The shuttles in this case are similar in construction to those " required under the first head of my improvements, but instead " of a rack being inserted in the back of each shuttle, the back is

" simply grooved or slotted at each extremity to receive the " levers."

"Thirdly, my improvements consist in working two or more " shuttles simultaneously by employing a pair of pinions below " the series of shuttles, by which pair of pinions the motion is " imparted, and a pair of pinions to each shuttle, the driving " pinion and the followers being all fixed in the same pair of " spindles.

" Fourthly, I obtain the same result as that last described by " the employment of one pair of pegs or levers furnished with as " many studs as there may be rows of shuttles.

" Fifthly, my improvements consist in the employment of a " series of shuttles, one at the back of the other, as in my former " Patent, dated September one thousand eight hundred and sixty, " but reversing their position, turning them upside down, so that " the guides come underneath."

"Sixthly, my improvements consist in dispensing with the " bottom shaft of the loom with its motion wheels, obtaining the " motion from the upper shaft. For this purpose I place a cam " of any desirable shape upon the top or crank shaft, employing " a treadle with a pulley for the cam to work over, the treadle " being kept always up to the cam by a weight or spring. An " iron hook is suspended from each of the ground shafts " working in a slot to keep them in position. The treadle in " descending catches the hook, and draws down the one shaft at " the same time that it raises the other shaft; the treadle then " rises, and in again descending catches the other hook."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, December 2.—N° 3229.

CRAVEN, JOSIAH, CRAVEN, JOHN, and ROBINSON, JONAS.—(*Provisional protection only.*)—" This invention relates to cir" cular or other change shuttle-box looms, and the improvements " consist in a means or method of stopping the shuttle at the " proper place in the box, so as not to prevent the free movement " or change of the boxes at the time required."

The inventors " employ a lever which is hinged to the box frame, " having a projecting finger at one end extending across the box " and near to the guide spindle of the picker; the other end or " arm of this lever is connected by a rod to the loom end frame in " such manner that the motion of the lay or batten will operate

" the said lever as required." They " also employ a spring lever " or levers for drawing back the picker immediately after a pick is " made, or when the shuttle is driven out of the box."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 8.—N° 3285.

TODD, PETER.—This " invention relates to pickers employed in " power looms to strike the shuttle across the loom, and consists " in the combination of wood and leather to form such pickers. " The leather is the portion arranged to strike the shuttle, and " the wood is used as a foundation upon which to fix the leather " by means of wire or cement, by which combination the 'leather " 'tips' may be renewed when required."

[Printed, 6*d*. Drawing.]

A.D. 1862, December 10.—N° 3313.

CHALMERS, DAVID.—" This invention relates to the arrange" ment and construction of winding, copping, or balling machines, " such as are used in the manufacture of flax and other textile " materials, as well as to shuttles employed in weaving. In the " improved winding machine the winding or balling spindles are " disposed in an angular, diagonal, or horizontal position, or they " are inverted for the purpose of taking advantage of the weight " of the spindle for hardening the cop or pin. The object of the " diagonal or horizontal spindle arrangement is to enable the " attendant to doff or take off the cop with greater ease. The " spindles each work through a tube and stuffing box, so as to " throw the desired friction or weight upon the spindle and thus " dispense with the use of levers or weights. This tube is fitted " with a nut on its point to permit of tightening or slackening, " as required, and a metal shell and packing of india-rubber or " other suitable substance. At the other end of the tube there is " fitted a bevil pinion, working into a bevil wheel on a shaft " running along the centre of the frame, and on this bevil pinion " there is fitted a clutch or frictional connection fitting another " clutch or frictional connection on the tube. On the back of " the boss there is also a pin passing through a slot in the tube, " and this allows the clutch or frictional connection to move off " when the cop or pirn is filled or built up, or when the thread is " broken. The point of the spindle works up against a washer

" on the pin which passes through the tube of the clutch or frictional
" arrangement to shift off the clutch when the cop or pirn
" is full or built up. A handle is also fitted for lifting off the
" clutch when required, and a spring or weight is fitted to this
" handle to arrest the motion of the spindle when the thread
" breaks, or when the thread is exhausted." "The invention
" also comprehends the use of the cones of glass, porcelain, or
" earthenware to prevent rapid wear, and also for winding off the
" hank; a spring or lever is used to take the jerk off the reel
" when winding. The improved shuttle which is used for weaving
" these cops or pirns is fitted with a spring somewhat similar
" to the spring used in the shuttles for weaving cotton cops, but
" the spring acts on the top to keep the cop or pirn firm; or a
" snib may be used at the point of the plate, where it is turned
" down with an india-rubber washer or spring on the snib."

[Printed, 10*d.* Drawing.]

A.D. 1862, December 11.—N° 3319.

TRISTRAM, William, and BRERETON, Henry.—These
" improvements are applicable to the machines known in the trade
" as 'slashers' and tape machines, which machines are employed
" for sizing and drying yarns and threads, and winding them on
" to beams."

The "invention consists in the application of a revolving brush
" which acts on the yarn or thread, immediately after the yarn or
" thread has passed the rollers by which the size is applied, and
" by which the surplus size is squeezed out; the brush rotates
" rapidly, and the yarn or thread is pressed into the bristles by
" means of a rod connected to a swing frame, the position of
" which can be varied so as to increase or reduce the depth to
" which the yarn is pressed into the bristles. Below the revolving
" brush is another brush, which revolves slowly in a trough
" containing soap and water or other liquid for clearing the brush
" acting on the yarn or thread and keeping it moist."

[Printed, 8*d.* Drawing.]

A.D. 1862, December 12.—N° 3329.

ROUSSEL, Joseph Eusèbe.—(*A communication from Victor
Armand Thaurin.*)—" Improvements in hand and power looms for
" *weaving.*" "These improvements consist in an arrangement of

" slay or reed with lifting or passing auxiliaries and a regulator " of motion, and in the application of the passing auxiliaries and " regulator to the ordinary slays and looms."

[Printed, 1s. Drawings.]

A.D. 1862, December 12.—N° 3330.

GASKELL, James, and WALMSLEY, Henry. — " Improvements in regulating the tension of yarn in the processes of " warping, winding, sizing, weaving, and other similar purposes." The "invention consists of regulating the tension of the yarn by " giving motion to the bobbins or other apparatus on which the " yarn is wound."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 15.—N° 3347.

STANSFIELD, Richard, and DODGEON, John. — (*Provisional protection only.*)—" Improvements in looms for weaving." The inventors say,—" This invention consists, first, in an improved " stopping motion for stopping the loom when the shuttle is not " in the box. We employ in each shuttle box that description of " swell which is acted upon by the top of the shuttle, but bring " the end of the swell to the back of the box, so that when the " swell is held up by the shuttle its end shall come in contact " with a lever on the stop rod, and hold up the stop rod finger; " but when the shuttle is not in the box the end of the " swell shall not be in contact with the lever, and thereby allow " the stop rod finger to be depressed and come in contact with the " frog and stop the loom. We also employ the check strap for " stopping the loom when the shuttle is not in the box. We con- " nect the strap at two places in opposite positions to a boss or " pulley working on a stud at the front of the slay, so that when " the shuttle acts against the strap end in either shuttle box the " boss shall be turned in the same direction. The boss is " attached by part of the check strap or other connection to a lever " on the stop rod, or to the stop rod finger itself, in such a " manner that when the shuttle is properly boxed and strikes the " end of the check strap, it raises the stop rod finger out of con- " tact with the frog, but when the shuttle does not arrive in the " box the check strap is not pulled, and the finger not being raised " comes in contact with the frog and stops the loom."

"Secondly, in an improved arrangement of buffer or check strap. "We coil one end of the strap round a concentric or eccentric "boss fixed to the slay or lathe, instead of fixing to it the end "of the strap itself."

"And, thirdly, in an improved mode of stopping the loom when "the weft thread breaks, or when there is no weft. We place the "weft fork on the opposite side to the setting-on rod, and instead "of placing the hammer on a stud we fix it to a shaft or tube "having upon it a lever which is acted upon by the absence of the "weft, and also at the other end another lever which operates "upon the setting-on rod or spring handle and liberates the brake, "so as to stop the loom at the breakage or absence of the first "pick of weft. We place the weft break on a segmental bearing "at one end of a lever communicating with the setting-on rod, "so that the break can swivel in its bearing, and thereby cause "an equal clearance between it and the fly wheel in any position "required."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 16.—N° 3360.

HUDSON, William, MOORE, Henry, CATLOW, Christopher, and NEWBUREY, Samuel. — (*Provisional protection only*.)—"Improvements in looms for weaving, and in arranging "the warps therein." The inventors say,—"Our invention "relates, firstly, to a method of diminishing the shock of the "pickers. To accomplish this we adapt a strap or similar apparatus "to the front of the slay, which strap passes over two "pullies, and its ends are connected to buttons mounted upon "the picker spindles. When one of these buttons is struck by a "picker it draws the strap over the pullies, and the other button "is then ready to receive the blow of the other picker.

"Another part of our invention relates to a method of tightening "the warp when the weft is to be driven up, and of loosening "it when the shed is to be made. For these purposes we employ "a roller above the warp beam, around which, as well as around "the usual roller, a cord is passed. This additional roller is so "mounted as to be caused to vibrate from the crank shaft or other "moving part of the loom.

"Another improvement relates to a method of causing the "slay to vibrate. For this purpose we dispense with the usual "*connecting rod*, and cause the crank pin to move in a slot

" carried by the slay. In drawing in the warps the usual method " for plain work is to take the first and third, and the second " and fourth; but according to our invention we take the first " and second, and the third and fourth. In working the healds, " therefore, the first and third rise and fall together, and the " second and fourth."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 24.—Nº 3436.

SMITH, JAMES SUTCLIFFE.—(*Provisional protection not allowed.*) —This "invention relates to that portion of the power loom known " as the stopping or 'knocking-off' motion." "At a convenient " place on the framing of the loom beneath the 'stoprod finger' " a rod is secured, upon which is a sliding piece, carrying a rod " to act upon the 'handle.' This sliding piece is also connected " by means of a wire or rod to a peculiarly formed lever, one end " of which may be brought into contact with the fly wheel (as a " break) upon the other end being acted upon or struck by a " tappet secured on a catch box on the end of the tappet shaft " which extends beyond the framing; thus if the shuttle does not " enter the box the 'stop-rod' finger strikes the sliding piece " and releases the 'knocking-off handle.' The sliding piece " also draws the wire, which places the lever in a position, to " be struck and pressed by the extra tappet on the end of the " tappet shaft, by which means a break is put on the fly wheel, " and the stoppage of the loom is readily effected."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 31.—Nº 3483.

APPLEGATE, FRANK.—"This invention relates to an improve- " ment in that kind of wool dyed cloth known in the trade by " the appellation of deerskin, in which the larger proportion of " weft is woven on the outside of the cloth." The "invention " consists in the use of two kinds of weft of the same shade of " color or dye, but of different commercial values, the one being " dyed a woaded or indigo color, which is used only for the face " or exposed surface of the cloth, and the other a common or " unwoaded color, which is used for the back or unexposed " surface of the cloth."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 31.—N° 3484.

SMITH, James Sutcliffe, and HARDMAN, Joseph.—(*Provisional protection only.*)—This "invention relates to that portion of the power loom known as the stopping or 'knocking off' motion." "At a convenient place on the framing of the loom beneath the 'stop-rod finger' a rod is secured, upon which is a sliding piece carrying a rod to act upon the 'handle;' this sliding piece is also connected by means of a wire or rod to a bell-crank lever, one end of which may be brought into contact with the fly wheel (as a break) upon the other end being acted upon or struck by a tappet secured on a catch box on the end of the tappet shaft which extends beyond the framing. Thus, if the shuttle does not enter the box, the 'stop rod' finger strikes the sliding piece and releases the 'knocking off handle;' the sliding piece also draws the wire which places the lever in a position to be struck and pressed by the extra tappet on the end of the tappet shaft, by which means a break is put on the fly wheel, and the stoppage of the loom is readily effected."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 31.—N° 3489.

LORET, Francis.—"The object of this invention is to construct and adapt to power looms an apparatus which shall have the effect of stopping the loom whenever the weft breaks, or the shuttle by any accident shall not enter its box properly. To this end, forks consisting of two, three, or more prongs are adapted to the batten or slay between each end of the reed and the shuttle boxes. These forks are mounted on a spindle or shaft, so that they may vibrate thereon and project horizontally across the shuttle race. Spiral or other metal springs are adapted to the spindle or shaft for the purpose of drawing it and the forks mounted thereon round in one direction when the batten is driven forward. These spiral or metal springs tend to lift up the forks, but another set of springs is adapted to the stationary part of the loom, and is made to pull round the spindle or shaft and the forks in the opposite direction when the batten is drawn back. Another set of vibrating forks is mounted on a second spindle or shaft, the prongs of this second

" set of forks being so arranged that they will, when required, " enter the spaces between the prongs of the first set of forks. " Upon the fork spindles or shafts are mounted levers or arms " which are connected in any convenient manner to the stop " motion of the loom.

"The operation of the apparatus is as follows: — As the " batten vibrates and the weft is thrown across through the shed, " the thread then passes over one of the forks, and will thereby " prevent the other fork from passing through. By this means " the second fork is made to turn its spindle on its axis, and " thereby remove a lever or arm mounted thereon out of the way " of the stopping motion of the loom. Should, however, the " weft be found wanting, the forks will pass through each other, " and the projecting arms from their spindles will come against " the stopping motion, and by throwing the driving strap off the " foot pulley will at once stop the loom."

[Printed, 8*d*. Drawing.]

1863.

A.D. 1863, January 2.—N° 16.

BAMFORD, Abraham; BLOMLEY, Richard; TAYLOR, Robert; and LETT, James.—"Improvements in looms for " weaving." This invention consists in "connecting the picking " stick (when it does not move with the lathe) to the picker " without the intervention of straps, bands, or chains usually " employed."

[Printed, 8*d*. Drawing.]

A.D. 1863, January 2.—N° 17.

HUGHES, Edward Thomas.—(*A communication from Alphonse Eymin and Jean Marie Tourres.*)—(*Provisional protection only.*)— " Improvements in producing designs upon velvets, cloth, " furniture, hangings, and similar materials. The inventor says, " In the manufacture of velvets, cloth, furniture hangings, and " other fabrics, to produce raised, friezed, or tufted designs " thereon, I employ a warp of silk, cotton, hemp, flax, or other

" similar material, with a long weft of wool, and so am enabled " to produce various designs on the fabrics.

"To produce raised, friezed, or tufted designs on woollen " fabrics I use woollen threads well twisted, which work close, " and woollen threads not twisted so much, by which I obtain " the desired effect."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 3.—N° 29.

TOLSON, William, and BROWN, Charles.—(*Provisional protection only.*)—The object of this "invention is to cover " strips of steel or other suitable material for crinolines in such " a way as first to provide the means (by forming a selvedge) for " sewing such covered material to the material or fabric of the " skirt to which it may be attached, the covering being effected " in any suitable material or variety of colour, and may be done " with great dispatch, so as to ensure harmony; secondly, to " disguise the effect of the hoop-like appearance in crinoline " skirts by weaving or producing in the loom, at the time of " covering the material or otherwise, an additional broad flounce " frill, or other ornamental border, to extend down below the " covered steel or other suitable material that may be used; " thirdly, in enclosing two or more strips of steel or other material, the same being placed at suitable distances apart, the " intermediate space being occupied with a woven fabric of any " material or colour, so as to form what is technically called a " 'fulling,' and which may be made with an outer selvedge on " both edges, or frill, fringe, flounce, or other ornamental " border on one or both edges, as preferred."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 5.—N° 33. (* *)

COOPER, John Alexander.—(*Provisional protection only.*)—The application of "the fibre which is found immediately under " the bark of the plant called the periwinkle as a substitute for " and using the said fibre in combination with silk, cotton, flax, " and such like materials." This fibre, when properly prepared, is capable of being spun into thread and woven into textile fabrics. "The fibre may be separated from the rest of the plant " in the same manner as that used in preparing flax, but a

" preferable way, and which is part of my invention, is to proceed " by either of the two following methods, namely, after removing " the leaves the stalks of the plant are placed in a chamber, " through which a current of air, heated to a temperature of " about 100 degrees of Fahrenheit, is passed, until upon bending " the stalk the bark separates readily. The other method is to " subject the stalks, after removing the leaves, to a current of " steam from about five minutes to half an hour, depending " upon the length of time that the plant has been gathered, and " afterwards drying them in a kiln or by a current of hot air " until the bark separates easily. Care must be taken that the " heat used in drying is not so great as to render the fibre brittle. " After each of these methods the stalks are passed through a " scutching mill and hackled, and afterwards bleached in the " ordinary way."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 5.—N° 34.

HOWARD, John, and BULLOUGH, John.—These improvements relate to warping and beaming machines.

The patentees say:—"This invention relates to self-acting " stopping motions for stopping the warping or beaming machine " when one or more of the warp threads break, or when a bobbin " is empty, and consists of various improvements upon an invention for which Letters Patent were granted to us, bearing date " the fourth day of July, one thousand eight hundred and sixty- " two, Number 1948."

"Our present improvements are as follows:—First, we make " the pin holder capable of expanding and contracting by forming " it of one or more bands of vulcanized india-rubber or metal " springs."

"Secondly, we employ certain improvements connected with the " electrical apparatus described in the Specification of our former " Patent before alluded to. We make each pin which guides the " threads in the form of a double lever, having at one end, either " above or below, a recess, or guide, or eye, continuous or other- " wise, for the thread to pass between or through. The levers " are threaded or hinged on a wire shaft or bar stretched across " the machine and connected to one pole of the battery, and " near the plain ends of the levers there is a wire or bar

" connected to the other pole of the battery. When the " threads are entire the levers are prevented from touching the " second wire or bar, but when a thread breaks or is absent the " plain end of the lever comes in contact with the wire or bar " and completes the current, the end rising or falling according to " the position of the eye or recess, and the way in which the " lever is balanced."

" Thirdly, we employ improved modes of working a revolving " fan or series of bars used as part of the mechanical agents for " stopping the machine when one or more pins fall from " breakage or absence of thread."

" Fourthly, we give the oscillating bar or bars under the pins " two working strokes in one revolution of the cam or eccentric " instead of one."

" Fifthly, we employ a self-acting cleaner or fluker, for pre- " venting any accumulation of fluke that may interfere with " the free action or dropping of the pins."

" Sixthly, we give when required a drag to the threads, to " prevent the weight of the pins pulling any slack between the " rollers and bobbins, by covering one or more of the rollers with " flannel, leather, india-rubber, or other suitable material, and " also where required allow the swing or take-up roller to be " pulled up, and held in surface contact with one or both of the " other rollers."

" Seventhly, we arrest for a short time the descent of the " swing or take-up roller, for the purpose of causing the yarn to " be sufficiently slack for all the pins to fall, and thereby enable " them to clear their sheaths, guides, or slots, of fluke or other " matter."

" Eighthly, we employ an improved mode of driving the machine " by friction pulleys, instead of the fast and loose pulleys as at " present."

[Printed, 3*s.* Drawings.]

A.D. 1863, January 6.—N° 43.

ECKERSLEY, JAMES.—The patentee says,—" One of my im- " provements in looms for weaving fabrics consists in attaching " to the shaft that carries the arms for holding the reed in the " lathe a lever, which comes in contact with another lever or stud " acted upon by a weight; the said weight presses the reed in the " direction of the cloth, so that when the said reed comes against

" the cloth the blow will be in proportion to the weight acting
" on the reed, and may be varied as required." "A catch is
" attached to the said lever, and acts upon a ratchet that moves
" a ratchet wheel coupled to the cloth beam by suitable mechanism
" for the purpose of taking up the cloth as required.

"Another of my improvements in weaving is to prevent re-
" beaming the cloth, and consists in placing a roller acted on by
" a weight or weights against the cloth on the cloth beam, to
" prevent the folds of cloth from rubbing against each other.

"My next improvement is for the purpose of weaving stripes
" across the cloth of equal or varying sizes, and consists in
" actuating by the moving cloth as it is wound on the cloth
" beam a disk containing any convenient number of indentations
" or projections on its edge or faces, which act on the shuttle-box
" motion by means of a lever or other convenient mechanism for
" the purpose of changing the shuttles, so as to weave the stripes
" of any desired width, independent of the varying thickness
" of weft.

"Another of my improvements for letting off the yarn from the
" beam consists in passing the said yarn from the yarn beam
" over a bar acted on by a weight or weights, either direct or by
" the use of levers or pulleys, and the said yarn is let off the yarn
" beam by the action of a ratchet and wheel worked by any con-
" venient part of the loom. When too much yarn comes off the
" said yarn beam, a rod attached to the before-named bar over
" which the yarn passes, and also attached to the said ratchet,
" lifts the said ratchet from the wheel, which then ceases to move
" until the yarn taken up by the cloth beam allows the bar to
" move, and to put the ratchet into gear again.

"Another of my improvements is for the purpose of taking up
" the cloth at an uniform rate as it is woven, and is accomplished
" by placing a roller or bar on the cloth that is wound round the
" cloth beam, and attaching a lever to the said roller or bar: the
" other end of the said lever contains a slot, into which works a
" stud projecting from a slide block which slides in a groove or
" slot situate in the lathe sword. An arm also projects from the
" said sliding block, and actuates another lever containing a slot
" at one end and a ratchet at the other; the said ratchet moves a
" ratchet wheel connected to the cloth beam by means of suitable
" mechanism, and thereby winds on the cloth as required. The
" slots are for the purpose of allowing the levers to alter the

" velocity of the ratchet wheel as the cloth increases in diameter
" on the cloth beam.

" Another of my improvements is for weaving and cutting
" pile fabrics, and consists in weaving a double cloth, and
" cutting the pile which holds the two cloths together whilst in
" the loom."

" My next improvement is for the purpose of lifting or moving
" the healds of looms for weaving, so that various kinds of cloth
" may be woven from the same or different materials, and is
" named an index machine, and consists in attaching to any
" movable part of the loom an oscillating lever; the said lever
" has two other levers attached to it, and the last-named levers
" actuate two side rods, coupled by a cross head containing holes,
" so that rods or cords may pass through. The said rods or
" cords are attached to the healds, which are suspended by springs.
" The cords or rods are attached to sliding bars having hooks or
" projections upon them, and the said sliding bars are actuated
" laterally by cross bars moving in guides, and having springs
" attached thereto. The said cross bars are so arranged that one
" end of each can pass into the perforations of a square or other
" shaped cylinder movable upon axis, and having patern cards
" passing over it. The said cylinder is actuated by the oscillating
" lever and slides at right angles to the axis on which it revolves.
" When the loom is in motion the crosshead before named brings
" down the shed to a horizontal position, and a projecting bar
" or projecting bars fixed on the oscillating lever, and which
" moves through double the space moved through by the said
" crosshead, catches any of the said sliding bars that may have
" been moved laterally by the cross bar connected thereto, having
" been prevented by the card then in action from entering the
" perforations in the sliding cylinder, and carries with it the heald
" attached thereto below the horizontal position of the warp.

" Another machine for accomplishing the same purpose as the
" one last named is made by placing a bar against each of the
" sliding bars attached to the healds in such a manner that a
" revolving cylinder having pegs or projections on its surface acts
" by means of the said pegs or projections on the said bar, and
" moves it laterally, and thereby causes the oscillating lever to
" bring down the sliding bar and open the shed below the
" horizontal position. In this machine cards are not used."

[Printed, 1s. Drawing.]

A.D. 1863, January 7.—N° 55.

CRABTREE, WILLIAM, and CROWTHER, JAMES.—(*Provisional protection only.*)—" An improved mode of perching and " dressing textile fabrics during the process of weaving." Immediately under the breast beam of the loom is placed a roller which extends across the loom. " The surface of this roller is " covered with card, cloth, teazles, or other material usually " employed for the purpose of raising and cleaning the surface or " face of textile fabrics."

[Printed, 4*d.* No Drawings.]

A.D. 1863, January 9.—N° 81.

MORELAND, WILLIAM HARRISON, and CHAPPELL, JOHN.—" Improvements in winding, warping, beaming, or dressing " machines." " The object of this invention is to secure an " uniform tension of the yarn on the beam to which it is being " transferred from spools or bobbins.

" The invention consists in the application to the ordinary " winding, warping, beaming, or dressing machines that wind " from the spools or bobbins of a drag roller or rollers for " taking up the slack yarn caused by the over-running of the " spool or bobbins from which the yarn is being wound."

[Printed, 8*d.* Drawing.]

A.D. 1863, January 14.—N° 121.

BURROWS, BENJAMIN.—The patentee says,—" This invention " has for its object improvements in looms used in weaving " narrow fabrics. For these purposes, in order that shuttles of " less length may be employed than has heretofore been necessary " in weaving a given width of fabric, and so to admit of a " greater number of fabrics being woven in a loom of a given " width than has heretofore been possible, I employ springs to " each shuttle, which springs may either be fixed to the shuttle " or to the batten, and each of such springs is arranged to act on " that end of the shuttle which is still in the groove or slot in the " batten, so as to counteract the tendency of the other end of the " shuttle to drop as it passes across the space where the reed is " *situated, and* before such other end of the shuttle has entered, " *and is supported* in the groove or slot in the batten at the other " *side of the* reed. In weaving narrow fabrics, it is common to

" employ two shuttles in making each fabric, and usually each " shuttle has a reciprocating rack and a pinion to actuate it.

" Now, I employ only one reciprocating rack to actuate the " pair of shuttles, and I employ therewith two toothed wheels to " each pair of shuttles. The reciprocating rack gives motion to " the two toothed wheels, and they give motion to two pinions, " one on each side of the space in the batten where the reed is " situated, and on the axes of such pinions there are two other " pinions which take into the racks of the two shuttles."

[Printed, 10*d*. Drawing.]

A.D. 1863, January 15.—N° 139.

CHILD, JOHN WRIGHT.—" Improvements in means or apparatus " employed in spinning and weaving." The patentee says, " Yarns to be used in weaving are spun upon tubes which are " usually of a cylindrical form, and such tubes have been formed " of paper and other material."

" My improvements consist, first, in substituting for the cylindrical figure a polygonal figure, so that the outer surface of such " tubes may be composed of a series of angles, and I prefer that " such angles be as sharp as possible by the surfaces between " being hollowed. Such angles may be parallel or somewhat " inclined across the axis of such tube or slightly helical. Tubes " thus formed will be found to fit more readily upon the wood or " other internal tubes upon which they are placed during the " spinning, as well as on the shuttle peg when in the shuttle, and " the yarn as wound thereon will be more firmly held from " slipping off bodily endwise, whilst it will also unwind or weave " off more freely. I also apply to the ends of such tubes or " receivers projecting rings of metal or other material to prevent " the yarn in unwinding therefrom from catching on the raw " edges or ends as well as to enable such tubes to hold more " yarn: I also form tubes or receivers for yarn when of a " cylindrical or other form with the outer surface thereof of " differing diameter, by preference helical, and increasing in " diameter towards one or both ends of them. I also form such " tubes with helical projections thereon. I also sometimes " saturate or coat tubes when they are formed of paper with " india-rubber or any other suitable matter adapted to resist the " *action of water* or other liquid used to saturate the yarns " *thereon.*

"My improvements relate, secondly, to applying to the pins or " pegs of the shuttles upon which such tubes are placed for " weaving bands or rings of india-rubber, leather, or other suitable " elastic substance adapted to hold the tubes or receivers from " slipping off.

"Thirdly, the improvements relate to applying the washers " upon which the flanges of the spools or spool tubes rest in " spinning frames during the spinning, so that during the " spinning and as required the amount of frictional surface exerted " by such washers may be varied."

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1863, January 17.—N° 149.

SHORROCK, William. — (*Provisional protection only.*) — " Certain improvements in power looms for weaving." The inventor says :—" My improvements in looms consist, first, in " the novel and peculiar arrangement of apparatus for applying " and regulating the power or friction of the break on the warp " beam, whereby I am enabled to keep a constant pressure upon " such beam during the operation of weaving, but should there " be any imperfection in the weaving, necessitating a reverse " motion to the said warp beam, such reversing is accomplished " without any pressure upon the beam by the said break.

" My improved arrangement of mechanism may be described " as follows :—Upon one end of the warp beam is fixed a cylindrical bush supplied with a ratchet wheel, such wheel being acted " upon by a pawl or catch secured to a grooved ring or hoop " encircling the afore-mentioned bush, a strap of leather or other " suitable material being fitted into the groove of this ring, having " the pressure exerted upon it by means of a clip or break, and is " so arranged that when such clip is tightened it shall exert a " pressure upon the warp beam, through the medium of the afore-" mentioned pawl and ratchet wheel during the operation of " weaving, but should any reverse or backward motion be given to " the warp beam, the pawl or catch slips over the teeth of the " ratchet, thereby allowing the bush encircling the warp beam to " revolve freely within the grooved ring without any pressure, the " only pressure upon the warp beam being effected by the contact " or resistance of the pawl or catch against the ratchet wheel. " Upon the adjustable pressure clip is a small bowl acted upon " by a spring, in such a manner that it shall always cause an even " tension to be given to the warp.

"A second part of my improvement consists in the employ-
" ment and use of bowls or pulleys, secured below the healds and
" above the treddles, to which the healds and treddles are attached
" by means of straps; such straps, when the treddles are in
" motion, partially wrap or fold upon the afore-mentioned pulleys,
" so causing by their connection with the healds a constant rise
" and fall or shedding to such healds."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 20.—N° 173.

CLARK, William.—(*A communication from Andrew Naudain, James Peacock, and William Henry Walton.*)—" The nature of
" this invention consists in weaving fabrics in a circle, or any
" part of a circle, and in using a plurality of shuttles passing
" through a warp or web at the same time, and in carrying the
" shuttle or shuttles through the warp by means of friction rollers,
" pullies, belts, or their equivalents, and by beating up the weft
" or filling in sections."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1863, January 21.—N° 178.

PHILLIPS, Andrew.—"This invention relates to the arrange-
" ment and construction of looms for weaving carpets and other
" generally similar figured fabrics, and is based upon an invention
" of improvements in weaving carpets, for which Letters Patent
" were granted to the said Andrew Phillips, and dated on or
" about the 18th of July 1859, No. 1694. In this invention the
" looped or velvet pile surface of the fabric is formed wholly of
" weft, which is bound in by a secondary or binding weft."

" Under one modification or system of arrangement the warp is
" wound upon two beams arranged at the back of the loom, and
" paced in the usual way. In addition to the warp there is a
" 'dandy chain,' which is wound upon two beams arranged
" inside the ordinary warp beams, this chain serves to give body
" to the cloth, as well as to assist in binding in the loops formed
" by the weft. At the back part of the loom, behind the heddles,
" is arranged a stationary reed, the wires of which are made of a
" segmental or curved figure so as to correspond to the arc
" through which the backward ends of a series of loop formers
" move. These loop formers are made by preference of thin bars

" or flat pieces of steel, the backward ends extend through the " divisions of the reed, and are each fitted with two small laterally " projecting studs which serve to keep the loop former in its " place in the reed, and to admit of free motion in the upward " direction; the loop formers separately attached to the cords of " the jacquard machine so as to be raised in the order necessary to " produce the required pattern."

In weaving with this arrangement, upon the woollen weft being " thrown across the shed a series of levers are brought into action " for the purpose of bending the weft partly round each loop " former."

" As the cloth is woven it is taken up by a self-acting move" ment, which consists of a lever carried on a stud in the framing. " The free end of this lever extends backwards, so that as the " lathe is moved back it depresses the lever, and causes a pawl " carried on its front extremity to move a ratchet wheel round " one tooth at a time. This ratchet wheel is keyed on the stud " carrying the lever, and at the inner end of the stud is a pinion " which gives motion to a wheel on the pike roller, which roller " is paced to the cloth beam so as to cause it to move in unison."

[Printed, 10*d.* Drawing.]

A.D. 1863, January 21.—N° 182.

BARLOW, HENRY BERNOULLI. — (*A communication from Hercules Erba.*)—(*Provisional protection only.*)—" Certain im" provements in jacquard machines." " The first part of this " invention consists in substituting thin metallic plates for cards " usually employed in the jacquard machines. These plates are " punched with holes corresponding to the full number of needles " required, and the design is produced by plugging a portion of " the holes."

" The second part of this invention consists in working the " jacquard hooks by atmospheric pressure."

[Printed, 4*d.* No Drawings.]

A.D. 1863, January 22.—N° 194.

HARRISON, WILLIAM, and CROASDALE, BENJAMIN.—(*Provisional protection only.*)—" Certain improvements in looms " for weaving." The " invention consists, first, in an improved " *shedding* motion." " The shedding levers are placed above or " *in front of* the tappet shaft; the eccentrics or tappets acting on

" these levers give the requisite up-and-down motion to the
" heddles for forming the shed. The fulcrum of the shedding
" levers is adjustable to vary the opening of the shed, or the
" length of the levers can be varied."

The second part of the "invention consists in an improved
" arrangement of the mechanism applicable to an ordinary twill
" loom, whereby such a loom may be employed for weaving
" linoes or gauze."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 23.—N° 207. (* *)

HENDERSON, Alexander.—(*Provisional protection only.*)—
" Improvements in the preparation or manufacture of textile
" materials, and in the machinery or apparatus used therein."

The invention relates to the winding of yarn into cops. " Under
" one modification or system of arrangement, the improved
" winding machine consists of a cast-iron framing, in front of
" which is arranged the series of vertical spindles, which are
" driven by means of bands passing round a longitudinal cylinder
" or drum in the usual way. The upper part of each spindle
" is a square, angular, or oval figure in its cross section, whilst
" the lower portion is of the ordinary cylindrical form. A tubular
" metal pirn is placed on the spindle; the upper part of this
" pin is made in the form of an inverted cone, and the aperture
" through this portion corresponds to the squared, angular, or
" oval part of the spindle. In placing the empty pirn on the
" spindle it passes down through an inverted conical cop former,
" which serves to give the required figure to the cop, and the
" lower end of the tubular part of the pirn rests on the collar of
" the spindle in the upper rail. From the upper part of the end
" standards are two projecting bracket pieces, which carry the
" rail on which are arranged the bobbins for the supply of yarn
" to the cops. The necessary amount of drag or tension on each
" bobbin is obtained by means of a pendent weight, or in any
" other equivalent manner. The necessary reciprocating movement
" for building up the cop is obtained from a crank on the
" main shaft or other suitable part of the machine." This crank
acts upon certain levers, a similar crank upon another part of the
shaft acting upon other similar levers, and the whole giving a
reciprocating motion to a square bar carrying "guide levers,"
furnished with forks. As the yarn accumulates on the pirn the

latter rises, until the cone at the top thereof passes above the square, angular, or oval part of the spindle, "so that the latter "revolves without affecting the pirn." A bent lever is arranged behind each spindle, by moving which the attendant can stop the spindle when requisite. In winding yarn from the hank, the yarn proceeds from reels mounted in suitable standards, and the formation of the cop is effected "with the same ease and "certainty of action as when winding direct from the bobbins." In both cases the yarn passes through a slot in the "conical cop "former."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 24.—N° 218.

SHACKLETON, Ellis.—(*Provisional protection only*.)—"This "invention relates to that class or kind of looms for weaving "wherewith circular or rotary change shuttle boxes are employed; "and the improvements consist in a means of instantly stopping "the rotation of the boxes; also the action of the indicating "apparatus when the weft breaks or becomes used up, although "the loom may continue to run one or two picks afterwards. For "this purpose a drop rod is suspended by the ordinary knocking-"off lever when in position or working order, and this rod sup-"ports a weighted lever hinged to the loom end in a suitable "position when the weft breaks or becomes used up; the weft "fork acts in the usual manner to stop the loom, and by removing "the knocking-off lever out of position, it allows the rod to drop, "and also the weighted lever which lifts or removes the ordinary "hooked rods out of contact with the cylinder of the indicating "apparatus, also the pawl out of gear with the ratchet by which "it is turned, and also applies a brake to assist in stopping the "loom."

[Printed, 4*d* No Drawings.]

A.D. 1863, January 24.—N° 224.

TOLHAUSEN, Frederick.—(*A communication from Antoine Comte.*)—(*Provisional protection only*.)—This invention relates to ribbon looms. The inventor says,—"In this improved loom the "batten or lathe is made with twice the number of pieces, but of "the same longitudinal dimensions as in the ordinary loom. The "second or additional set of pieces are placed underneath the "first set, thus increasing the height of the lathe, and the space

" between the successive warps is made available for placing the " reeds, through which each double piece of ribbon passes.

"By this arrangement the operative is enabled to see all the " pieces weaving, bearing in mind, however, that in fancy weaving " the upper warps are woven the right side up, whereas the lower " ones are woven the wrong side up, as each of the shuttles works " the upper warp in its ascending course, and the next lower one " in its descending course. The batten is divided into two parts " which slide on blocks, and can be set more or less apart, according " to the nature of the work. When one of these parts rises " the other is depressed to an equal amount.

"To the ordinary jacquard, which acts direct on the upper " ribbon warps, I superadd another, having no card cylinder or " beam, and acting direct on the lower or additional warps. This " auxiliary jacquard is set in motion by means of a double lever, " which oscillates between the two jacquards in such manner that " it lifts the shed on one side whilst it lowers the shed of the " other warp. For said purpose the wires or needles in the first " jacquard are made longer than usual, so as to work into the " auxiliary, and produce the contrary effect therein. The auxiliary " jacquard carries a moveable board on its grif to support " the hooks holding the threads; when said board descends all " those hooks which are not hung on the blades of the grif or " leash box descend along with it."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 27.—N° 239.

EDMONDSON, JOSEPH, and INGRAM, THOMAS. — The patentees say,—"The objects of this invention are:—

"Firstly, to render looms self-acting in finding the shed wherein " a broken pick is made, or where the full shoot of weft is not " introduced, so that when the loom stops the required shed " shall be ready to receive the weft at the next shoot.

"Secondly, to cause the change boxes in fancy looms to change " only when the required number of picks of any particular color " of weft have been woven, notwithstanding the weft having been " broken.

"Thirdly, to throw any required number of picks or shoots of " weft into one shed.

"Fourthly, in continuous loom or looms that do not require to " *stop for change of* weft, such as for which Letters Patent were

" granted to the aforesaid Thomas Ingram, dated April 4, 1860, " N° 861, to provide for the introduction of the changed weft " into the proper shed.

" Fifthly, in the aforesaid continuous looms to cause the weft so " introduced to supplement the broken pick or shoot, or to cause " the next shoot to commence at or near the point or place in the " shed where the broken pick or shoot terminates, or to take out " the broken pick of weft so that there shall not be a double " shoot in some part of such shed where a pick or shoot is " broken.

" Sixthly, to lessen the friction on the warp when weaving " gauze, leno, or other similar cloth, and to dispense with the " easy rod usually applied for that purpose.

" Seventhly, to thread the weft mechanically through the eye of " the shuttle or the weft case.

" In order to accomplish the first part of this invention we " apply a reversing motion for driving or operating the shedding " or treading tappets, which is arranged in such manner that " when the weft breaks the weft fork will act upon it, and cause " the tappets to be reversed in their action, or turned backward " to the position they were in when the weft broke, and then to " remain there until the loom stops and the weft is changed, " when the new shoot will be introduced to the proper shed or " place in which it was broken, or a counter may be employed, " either a ratchet wheel or worm, which may be set or adjusted " to run the number of picks required before the shed in which " the pick was broken returns in usual course, or in the case of " a jacquard or witch engine, to run the number of picks required " to bring back the same shed.

" The second part of our invention is effected by working or " operating the jacquard apparatus, witch engine, or other in- " dicating means employed in fancy looms for changing the boxes " from the same motion, or apparatus which we employ for " operating the shedding or treading tappets, consequently the " indicating apparatus will be reversed at the same time, and " remain in the position wherein the weft broke until the next " pick or shoot is made.

" The third part is effected by arranging the jacquard or other " indicating apparatus so as to become disconnected with the " *treading motion* for the required number of picks or shoots, " *and then be connected* again. In continuous looms, we have a

" feeding rack or hopper to each shuttle box, and the apparatus " employed for changing the weft cases is arranged to operate in " connection with the shedding motion, so that the tappets will " always be reversed, or the shed in which the weft was broken " re-opened before the changed weft is introduced.

"The fifth part of our invention is accomplished by having " separate holders for the ends of weft to each shuttle case " employed, which are mounted upon a wheel or endless strap, " which is so arranged that when a change of shuttle case is made " the holder of the changed weft will be moved into contact with " a cutting instrument. A weft feeler or detector is also placed " in such a position that the shoot of weft will act upon it in " passing through the shed, which feeler when the weft breaks " will actuate the cutting instrument at the proper time for cutting " and releasing the weft, so that the end of the new shoot of " weft shall join the end of the old or broken shoot in the shed, " or the broken shoot may be withdrawn from the shed by the " weft feeler feeding or delivering it to a rotary spindle, or to a " travelling endless belt. This weft detector may also be applied " to stop looms, and also in substitution of the ordinary weft fork.

"We accomplish the sixth object by using an additional 'dupe " 'heald' instead of the usual heald used to lift the duped end " or thread of the warp alternately with the dupe in addition to a " modified form of heald or dupe heald for the other ends or " threads of the warp. To thread the weft through the eye of " the shuttle or weft case we use a suction bellows or pump, " actuated by any suitable means, to the mouthpiece of which we " apply the eye of the shuttle when required to have the weft " passed through it."

[Printed, 2*s*. 4*d*. Drawings.]

A.D. 1863, January 31.—N° 284.

SMITH, Mark.—(*Provisional protection only.*)—" Certain im-" provements in looms for weaving." This "invention consists, " first, in the application of two chains of tappets working on " the same barrel, or placed at the same side of the loom, for " working by a cross shaft and the usual levers and rods the " drop boxes at both sides of the loom.

"Secondly, in working the jacquard and the vibrator by the " same lever actuated by the second-motion wheel or other con-" venient part of the loom.

"Thirdly, in making the lower edge of the vibrator in line with "the axis on which it vibrates, for the purpose of maintaining a "uniform action on the warp irrespective of the diameter of the "warp beam.

"Fourthly, in supporting the shaft for working the jacquard "barrel in a lever, the fulcrum of which coincides with the pitch "line of the wheels by which the barrel is driven, so as to be able "to throw the barrel beyond reach of the needles, whereby the "cards are kept in order and position when the loom is turned "back; or the same object is accomplished when the jacquard is "placed below by a pinion on the crank shaft driving a pinion on "a side shaft on which is a cam or scroll acting on a fixed pin.

"Fifthly, in making the jacquard barrel with two or more rows "of holes, and varying the level of the needles by a cam shaft or "other equivalent, so as to bring them in line with any required "row of holes.

"Sixthly, in giving a positive motion to the taking-up roller by "wheels and pinions driven by the crank or tappet shaft, and "dispensing with the ratchet wheel now generally employed; by "this means when the loom is turned back a similar motion is "given to the taking-up roller.

"And, seventhly, in an improved weft stop motion consisting of "a thin blade of steel or other metal fitting between the dents of "the reed and sliding in brackets attached to the head top and "batten; this blade is raised at every pick by an incline attached "to the breast beam or other convenient fixture, and in dropping "between the warp threads, which form the grid, it feels for the "weft; if the weft is absent, the blade drops and acts on a lever "connected to the stop rod for the purpose of stopping the "loom."

[Printed, 4*d*. No Drawings.]

A.D. 1863, February 2.—N° 294.

GIBSON, John.—(*Provisional protection only.*)—"This invention "relates to means of working or operating the healds or "heddles in looms for weaving, and the object is to facilitate "the changing or converting of 'Lancashire' or plain looms "into fancy looms." On the ordinary tappet shaft is placed a *tappet of peculiar form*, "capable of being readily moved and "*fixed in position* to act upon the ordinary treading levers in

" substitution of the ordinary plain treading tappets." Additional levers are also applied " in connection with the treading levers, so " formed and arranged that hooked rods depending from the " ordinary 'lambs' which are attached to the healds or heddles " may take hold thereon. These hooked rods are brought into " contact with one or both of the said levers by cards from jacquard " or other indicating apparatus as required, and are withdrawn " and held out of contact therewith by springs or weights; or " the rods may be bronght into contact by the springs or weights, " and removed by the indicating apparatus."

[Printed, 6*d*. Drawing.]

A.D. 1863, February 3.—N° 301.

RAWORTH, THOMAS.—This invention relates to looms for weaving narrow fabrics. The patentee says:—" I restrict the " length of the shuttles and their motion to the necessary limits, " and at same time so arrange the driving apparatus that I can " drive either of the shuttles (of a series required for weaving a " width of fabric) while the other or others remain at rest. I " can also drive them simultaneously in one direction, or simul- " taneously in opposite directions; or I can drive them alternately " in the same direction, or alternately in opposite directions, the " several shuttles for weaving a piece of fabric being perfectly " independent of each other. I effect this by employing (in the " case of two shuttles) an axis" "with spur pinions taking into " the shuttle rack, while for the second shuttle I mount the " driving pinion on a tube fitted and revolving freely on the " spindle or axis carrying the pinion driving the first shuttle; the " spindle is also furnished with a pinion at the lower part " taking into the driving rack in the batten; the tube axis or " socket carrying the driving pinion of the second shuttle is also " furnished with a pinion at lower part taking into a second driv- " ing rack in the batten. If a third shuttle is to be added, I place " a second socket tube or sleeve on the first, and furnish it with " the necessary pinions in like manner, and add a third driving " rack in the batten to actuate the same. In this way the first " axis or spindle serves to support the socket spindles, and the " whole rotate around an axis common to all. The driving " pinions may be all of one size, and the shuttle racks in the same " planes, while at same time the whole of the driving racks or

" apparatus are contained in the lower part of the batten below " the warp. I mount my shuttle guides or races on metal stand- " ards erected from the bed of the batten, which bed terminates " below the level of the shuttles; a light stay carried across the " top of the standards serves to support the top of the slay or " reed, the lower part being secured to the bed as usual."

[Printed, 1*s*. Drawings.]

A.D. 1863, February 3.—N° 302. (* *)

HOLCROFT, George.—(*Provisional protection only.*)—" Im- " provements in preparing cotton for the operations of spinning " and weaving."

This invention consists "in subjecting the lap of cotton pro- " duced by the blower, or the slivers produced on the carding " engine and drawing frame, or the rovings produced on the " slubbing, intermediate, and roving frames, or the yarn when " spun on the mule or throstle, or any of them, to the action of " steam for the purpose of rendering the cotton pliable and in a " better condition for being worked than it is when operated " upon in the usual manner. The steaming may be effected by " admitting the steam to the slivers while they are in the cans, " or the laps and bobbins with the fleece, slivers, slubbings, " rovings, or yarn may be put into a closed vessel to which the " steam is introduced; or the fleece, slivers, slubbings, or rov- " ings may pass through or over steam in a chest or otherwise " before entering between the feeding or drawing rollers of the " machine to which they are being supplied, or through which " they are passing."

[Printed, 4*d*. No Drawings.]

A.D. 1863, February 11.—N° 375.

SYMINGTON, William.—This "invention relates to improve- " ments designed to simplify and cheapen the weaving of muslin " or leno curtains and similar fabrics.

" In the ordinary system of weaving such fabrics the shedding " by which the weaving of the plain or ground cloth is effected " is caused by a set of heddles or healds, that is, by two or more " leaves of heddles, whilst the figuring or ornamental device is " produced by jacquard harness situated behind the heddles. " The heddles are constructed to permit of the raising of the

" threads for the figuring, there being in one arrangement only " one-half of the threads liable to be raised.

" In carrying out the present invention, according to one " modification, instead of there being a set of two or more leaves " of heddles for the plain or ground weaving, there is only a " single heddle leaf or its equivalent, and this is arranged to act " on one-half of the threads, namely, on those threads which are " not arranged to be actuated by the jacquard harness. One " shed for the plain or ground weaving is formed by raising this " heddle leaf, whilst the other or opposite shed for the plain or " ground weaving is formed by means of the jacquard harness, " and may be effected in various ways."

[Printed, 4*d.* No Drawings.]

A.D. 1863, February 14.—N° 398.

BAGULEY, Rowland.—(*Provisional protection only.*)—" Improvements in the construction of creels for warping machines " and other machines to which creels are applied."

This "invention consists in making the bushes of creels of " box or other hard wood, with a slot in which the spindle or " bobbin peg revolves, and with a back to prevent the spindle or " bobbin peg from moving endwise. These bushes are let into " and secured to the uprights of the creel in the same manner as " the glass bushes heretofore employed."

[Printed, 4*d.* No Drawings.]

A.D. 1863, February 18.—N° 444.

JOHNSTON, Francis, and HEATLEY, Robert.—(*Provisional protection only.*)—This "invention is designed to dispense with " the tappets and shaft now employed to actuate the healds, and " the improvements consist in a novel arrangement and combination of apparatus by which the rise and fall of the healds is " to be obtained, and which may be thus described:—Upon the " inside surface of the front bottom or cross rail of the loom a " bracket or support is fixed carrying a pulley attached to a " toothed pinion; this pulley is situated immediately under the " healds, and the heald strap passes from one heald round the " pulley to the other heald. Upon the back rail of the loom a " lever or bar has its fulcrum or centre of radiation, the opposite " end of such lever being toothed in the form of a quadrant,

" which gears into the aforesaid pinion; this lever is caused to " move to and fro laterally by means of an undulating disc, and " thus causes the semi-rotation of the pinion and pulley, and " produces the rocking motion which causes the rise and fall of " the healds.

" A second part of the invention relates to the regulation of the " tension of the warp, and consists in the employment and use of " a rod or carrier to support the warp, which is supported by " vertical rods, each terminating in a bowl or roller fitting into " two hollows or cups formed on the aforesaid oscillating lever, " so that as the lever moves to and fro, the bowl rises out of one " hollow and drops into the other, and then returns; thus when " the warp is slack, the elevation between the hollows causes its " tension, and when the 'shed' is open, and less tension is " required, the carrier or rod is at the lowest point; a bar is also " employed upon the warp to give tension instead of the ordinary " warp beam weights."

[Printed, 4*d*. No Drawings.]

A.D. 1863, February 19.—N° 452.

MARKLAND, THOMAS, and DICKINSON, JOHN CHARLES.—This " invention is designed for the purpose of stopping the mechanism employed in the processes of warping and beaming " when any of the threads become disunited." " Between the " ordinary rollers and the warping beam a series of 'dents' are " arranged, which are secured in elastic material so as to be " contracted or expanded at requirement; these dents are employed to serve as guides for fingers or levers under which the " yarn passes from the rollers to the beam, the said yarn on its " progress passing underneath a cranked or bent portion of the " said levers or yarn guides, thus keeping them by the tension " of the yarn in an elevated position, but as soon as one or more " of the yarn threads become broken or disconnected the levers " or yarn guides resting upon such threads are released, and fall " upon the frame holding the fulcra or centres of such levers and " guides, thereby preventing or stopping a reciprocating rod in " connection with the stopping motion of the machine from completing its action, causing an instantaneous stoppage to the " *whole machine*. A 'faller shaft,' having a wire attached to a " *bell-crank lever*, passes underneath the whole series of guides,

" which, when the machine is stopped, raises such guides into " position for the warp or yarn passing under them in their " progress to the warping mill."

[Printed, 10*d*. Drawing.]

A.D. 1863, February 20.—N° 459.

BARLOW, HENRY BERNOULLI.—(*A communication from Edme Hippolyte Junot.*)—" The object of this invention is to dispense " with the jacquard cards in the manufacture of figured fabrics, " and to facilitate the connection between the jacquard hooks and " the harness.

" The pattern or design to be produced in weaving is attached " to a table, which is moved by a screw actuated by a ratchet " wheel and toothed rack. When the number of cords required " to produce the pattern is determined, divide this number by " twenty or other convenient division. Another screw is employed to move the frame containing the register and the " pallets or thin metal plates, which slide on rods, and are held " the proper distance apart by wedges, diagonal threads pass from " one set of pallets to the other. In reading in, the operator " draws the coloured yarns through the diagonal threads, and " when one line is drawn in, by acting on the first named rack, " another line of the pattern is brought forward. In passing the " catches (embarbes) a horizontal and a vertical 'simple' are " employed; the latter is furnished with pistons having long rods " hooked to the horizontal 'simple.' As all the colours are read " at once, it requires as many spindles, plus one, as there are " colors. These spindles are flat, and they are passed through " the cords of the vertical 'simple;' they are supported at each " end in a wheel connected to a frame of the said 'simple.'

" The improvements relating to the jacquard hooks and the " harness are as follows:—Each hook is made double, and the " requisite spring is obtained by the double form of the hook. " The hooks, placed in rows of six or other number, pass through " oval eyes in the needles, and bear on the usual hook board; " the cords for connecting the hooks to the warp threads pass " through a comber board, and they are weighted by lingoes. " The three alternate hooks are first worked twice, then the three " intermediate hooks are worked twice, then the three alternate " hooks are worked once, and then the three intermediate hooks " are worked once.

"Another modification of this part of the invention consists " in placing the double hooks in rows of twelve or other " number."

[Printed, 1*s.* 6*d.* Drawings.]

A.D. 1863, February 20.—N° 463.

BENTLEY, JOHN, and BOOTH, HUGH.—" Improvements in " looms for weaving." "This invention consists in an improved " treading motion." "Each heald is attached to a jack or lever " above and below in the usual way." "Each of the jacks at the " opposite end to where it is attached to the heald is connected " by a cord or wire to a T-shaped lever, working on a stationary " shaft or stud, and to each lever is jointed three other levers, " one at the middle, and one at each end. To the middle lever " is fixed a bracket acted upon by a pattern chain, and the ends " of the bracket, and also the end of the middle lever are in contact with the other two levers, so that when the middle lever " rises up and down according to the pattern chain it shall act " upon the other two levers and raise them up and down in order " to bring one or the other in contact with a slide. When the " top lever is acted upon by the slide it gives one movement to " the heald, and when the bottom lever is acted upon, the other " movement is given to the heald, and the healds are brought " back to close the shed by studs or rods fixed to the slide."

[Printed, 8*d.* Drawing.]

A.D. 1863, February 25.—N° 530.

HUDSON, WILLIAM, and CATLOW, CHRISTOPHER.—(*Provisional protection only.*)—" Improvements in looms for weaving." The inventors say,—" Our invention refers, firstly, to the motion " for making the shed, and to that arrangement thereof in which " a revolving tappet is employed, acting at its upper and lower " sides upon rollers connected to the treddles. According to our " invention we mount these rollers upon an arm, through which " the tappet shaft passes, so as to act as a guide and support for " it. This arm is connected at its lower end to a treddle, which " is thus caused to vibrate in order to form the shed. As applied " to the arrangement above mentioned for making the shed we " cause one treddle to give motion to another by jointing the two " together.

"Another improvement upon the said motion consists in " mounting one or both of the rollers acted upon by the tappets " upon springs, so as to yield when required.

"Another part of our invention relates to the beating up " motion, and consists in forming the connecting rod and slay " as one rigid part, the latter being jointed to the lathe sword.

"Another part of our invention relates to the motion for taking " up the work or for letting off the warp. For this purpose we " use a plain wheel and clip, or friction surface, which is brought " into action by a lever acting thereon within the diameter of the " work or warp beam."

[Printed, 4*d.* No Drawings.]

A.D. 1863, February 27.—N° 550. (* *)

STAUFEN, Werner.—" A new or improved fibrous substitute " for human and other hair, to be used for all the purposes for " which human and other hair is now used, and also for the " manufacture of textile fabrics." "The fibres of the leaves of " the Elais Guineensis, and the fibres of the leaves of palms of " the same family," are extracted from the green leaves "by the " ordinary machinery used for similar operations in the preparation of other vegetable fibres." They are then treated with an alkaline solution mixed with lime. The patentee thus describes the particular mode of treatment which he prefers to adopt when the fibres are intended for textile purposes:—" I mix lime and " carbonate of soda, in the proportion of 1 lb. of soda to half lb. " of lime with water, and allow the preparation to stand till it " settles; the clear liquid is then drawn off and separated from " the solid matter or sediment, and should, when used, indicate " from 1½ to 2½ degrees of Twaddle hydrometer. In this liquor " the fibres extracted from the green leaves, as above mentioned, " are immersed during from thirty to fifty minutes, more or less, " and when dried are ready to be manufactured into textile " fabrics like any other vegetable fibres." These fibres may either be used alone or mixed with other vegetable or with animal fibres.

[Printed, 4*d.* No Drawings.]

A.D. 1863, February 28.—N° 566.

FARRA, Thomas.—(*Provisional protection not allowed.*)—" The " improvement consists in the novel application and use of a

" certain material to that class of goods or merchandize known as " 'skirt-ings.' The material is formed by weaving devices in imitation of a peculiar description of goods called 'sewed muslins,' " such manufacture being well known, but its application has " been hitherto limited, and never applied to 'skirtings.'"

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 2.—N° 578.

TOLHAUSEN, Frederick.—(*A communication from Achille Clément.*)—(*Provisional protection only.*)—"This invention relates " to the general and systematic use of flock, floss, fancy, or waste " silks for those cloths or fabrics which are employed in covering " printing or inking rollers, printing tables, and the like implements required for producing impressions on or printing fabrics " and papers in lieu of cotton, wool, and other substances which " have hitherto been used for the same purposes.

"When used for printing or inking rollers, or the like, the " improved cloth is made in two layers of twilled fabric of silk " floss and other similar material, which are united by a layer of " india-rubber laid on in the liquid state when used for printing " blankets ('doubliers') which are lying under the fabrics and " papers in the process of printing; a plain shed will answer the " purpose, the material employed in both cases being silk of the " kinds described."

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 2.--N° 583.

TAYLOR, Thomas.—(*Provisional protection only.*)—The inventor says,—"My invention consists in the manufacture of a " slight woven fabric of dressed, polished, or stiffened cotton yarn " or thread, or other suitable material, which fabric when cut " into strips presents a fringe, formed by the weft material on " each side of the body or warp which lies down the centre. I " then twist this slight double fringe, which imparts to it a light " feathery appearance, and apply it to the formation of ornaments " for fire-stoves and other decorative purposes. I sometimes " crimp the material which forms the fringe either before or after " it is woven." "Although I prefer to make the fabric in a wide " width, say from 20 to 30 inches, and afterwards cut it into " strips, yet a double fringe of the same nature may be produced

" singly, and it may or may not be cut. Or the fringe may be " formed of the warp threads instead of the weft thread, in which " case the fabric is cut into strips from selvage to selvage, instead " of lengthways."

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 3.—N° 593.

HENDERSON, JOHN—" Improvements in machinery or apparatus for the manufacture of carpets and other piled fabrics." The patentee says :—" The improvements relate, first, to an improved method of effecting the crossing of the surface warp " threads in the manufacture of pile carpets and other pile " fabrics, when such pile is formed by the aid of longitudinal " wires.

" For this purpose I prefer to employ longitudinal wires or " instruments of the character of those described in the Specification of Letters Patent granted to myself and James Broadley, " bearing date the 3rd day of August 1861, No. 1931. These " instruments have points or raised portions on them between " the reed of the batten and the healds when the lathe or batten " is in the back. Behind the lathe I apply a comb with long thin " flat teeth, and as many of them to the inch as there are longitudinal pile wires. This comb is placed in front of the healds, " and immediately behind and close to the points referred to on " the longitudinal pile wires. Each longitudinal pile wire with " its corresponding warp threads passes between two teeth of this " comb, and the teeth are of a length that will admit of their lower " ends passing below the lower warps when the shed is open, " while at the same time the bar in which the teeth are fixed is " sufficiently raised above such points on the longitudinal pile " wires as to allow of the pile warp threads being elevated to the " desired extent above those points. The comb bar is capable of " endway motion in order that when the pile warp threads are " required to pass down on the right side of the wires the comb " may be moved to the right, until its thin teeth bend so much as " that they slightly pass to the right of the points on the wires, " and so as to conduct the pile threads safely and surely past " those points.

" The surface warp, heald, or harness is now depressed, and the " threads are conveyed down the desired side of the wire. If the " comb be moved to the left, and the warp threads be depressed,

" they will in like manner be conveyed securely down the left " side of the wire."

"The improvements relate, secondly, to longitudinal wires " adapted by means of a holder to carry a knife or blade for the " purpose of cutting the pile loops formed thereon. I apply a " small pin or other suitable stop to one end of the sheath or " holder in such manner as to leave a small space between the pin " or stop and the bottom of the sheath to receive a corresponding " projection on the end of the cutting blade opposite to the " cutting edge thereof, by which the blade will be firmly held in " its sheath or holder while the operation of cutting proceeds, and " may yet be readily removed when required.

"The improvements relate, thirdly, to means for weighting " bobbins and their threads used in the weaving of Brussels carpets " and other pile fabrics, consisting of a break made of cast-iron or " other suitable material; this break is simply a bar hollowed out " so as to suit the curve of the bobbin's flange, and long enough " to reach from one end of the bobbin to the other; at each end " of the bar is attached a short arm. This break is placed immediately above the bobbin in such a manner that the cross bar " part of it lies on the flanges of the bobbin at the front of it, " while the extremities of the arms are held in position by a pin " or wire passing through each of them, which pin or wire is connected with a bracket fixed to the frame in which the bobbin is " placed; the break works freely on these pins so that the whole " weight of the cross bar is on the bobbin. I take the thread from " the bobbin, pass it over the cross bar of the break, and hang a " weight (of any requisite size) on the thread immediately in front " of the break. This weight in addition to weighting the thread " will also regulate the amount of drag which the break exercises " upon the bobbin."

"The improvements relate, fourthly, to the healds or harness used " in weaving, and consist in the application of a peculiar form of " mail to healds which work two warps at a time, such as those " used in the manufacture of tapestry carpets. I employ a long " mail, which has at one extremity a hole, through which the " surface warp thread is drawn; immediately under this hole is " a slit of any desired length reaching to the other end of the " mail. In addition there are the two usual small holes, one at " each end, through which is passed the wire or cord used for " making the healds."

"The improvements relate, fifthly, to tying in the surface warp " in cases where, particularly as regards the description of carpets " called tapestry, the design to be produced is of such an extent " that two or more seperate and different printed warps are " requisite to complete the design. Instead of drawing in the " warp under the weft shot, and thence taking the ends to the " surface of the carpet, as is usually done, I cause the ends of the " warp to be taken right through the warps to the back of the " carpet, where they are secured by being gummed, or by being " drawn through between the weft shots by means of a " needle."

[Printed, 1s. 6d. Drawings.]

A.D. 1863, March 3.—N° 601.

POLLARD, James.—(*A communication from Peter Garvie.*)—The patentee says:—"This invention consists in the combination " of warp dressing apparatus, herein-after described, with the " loom used for weaving fabrics, in such a manner that the processes of weaving and dressing the warp being so woven are " effected simultaneously. For this purpose I cause the threads " (after passing over what is ordinarily termed the warp beam) " guided by a reed to pass between two rollers, the lower roller " being covered with flannel or other similar material, and partially immersed in a suitable trough or vessel containing the " size or dressing in the direction of the healds of the loom, the " threads of the warp being kept even and in sufficient tension " by means of two small rods (over and under which they are " crossed alternately) affixed to an adjustable bar attached to the " loom for that purpose; or the threads may be caused to pass " over the upper one of the rollers before alluded to, which in " this case would be covered with flannel or other suitable material, and receive the size or dressing from the lower roller " revolving in a trough, and not necessarily covered with flannel " or similar material. To the ordinary crank shaft of the loom " I attach a brush or brushes of suitable breadth to remove any " superfluous size from the warp threads as they pass over that " part of the loom where the shaft is placed, the revolving brush " being cleansed in turn by contact with a brush fixed to the " trough or any convenient part of the loom. A fan may be " attached to the crank shaft to partially dry the warp threads."

[Printed, 8d. Drawing.]

A.D. 1863, March 9.—N° 658. (* *)

JOHNSON, John Henry.—(*A communication from Vittozio Secondo Ferrero.*)—" Improvements in the treatment of certain " fibrous vegetable substances with a view to the production " of textile materials therefrom."

These substances are "the fibres of the agave or aloe, linjetta " linteana, hemp, flax, sorsago, Manilla jute, and the fibrous portions of the wild pine apple plant." After being dried they are to be macerated under edge wheels, stones, or rollers, and " are " then to be placed in a vat containing just sufficient hot water " to cover them, and to one thousand parts by weight of fibre " are added six parts by weight of chloride of lime, or its equivalent proportion of bleaching liquid or chloride of soda, and " six parts by weight of sulphuric acid of commerce. The fibres " are now allowed to macerate, the chemical action being assisted " if desired by the application of heat. When the fibres are " removed from the vat, care is to be taken to protect them as " much as possible from contact with the atmosphere, and they " are then washed." " Finally, the partially prepared fibres are " dried, combed, and carded, and otherwise treated after the " manner of treating cotton for the manufacture of textile " fabrics."

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 11.—N° 673.

ROSSETTER, William.—"Improvements in back beam warping " machines." The patentee says,—" My first improvement consists in an expanding and contracting reed or wraith having " one or more spiral springs as the agent for expansion and " contraction in this reed or wraith. These spiral springs are " laid or supported in a suitable frame or box, and connected at " one end with a right and at the other end with a left hand " screw or other similar agent for expanding and contracting the " spiral springs proportionally. These spiral springs are connected at right angles by small bars with projections upon " them; the projections have holes or slots to guide pins or " similar agents, which pins or similar agents are supported by " the yarn when entire.

" *Secondly*, I employ a vibrator or roller with blades which " vibrates or revolves under the before-mentioned reed or wraith

" when not obstructed by the falling of one or more of the pins " that are supported by the yarn when entire. If the vibrator " or roller be obstructed by one or more of the pins falling, a " lever which is connected with the vibrator or roller is suspended; " this suspended lever brings another lever in contact with a " spring handle or knocker-off connected to the driving strap, " and thus stops the machine.

"Thirdly, I propose, in this arrangement for stopping the " machine, to use the ordinary expanding and contracting reed or " wraith which guides the yarn on the beam. I place in front or " at the back of the reed or wraith one or more wires, these " wires being at right angles with the warp threads. Upon " these wires I place for each thread in the warp a short lever; " each lever has at one end a continuous or split eye for the yarn " to pass through; at the other end of the lever is a catch or " hook which is suspended by the yarn when entire. When the " yarn breaks the catch or hook is allowed to fall, and is caught " by the vibrator or revolving roller with blades, which is in " communication with the spring handle, and stops the machine, " as above referred to.

" Fourthly, I drive this machine by means of a flanged pulley " upon the shaft end of the drum, and the strap is caused to be " slack and tight upon the flanged pulley by means of a lever " and small pulley connected with the spring handle for stopping " and starting the machine, so that when the machine is put in " operation the lever and small pulley tighten the strap upon " the large flanged pulley."

[Printed, 2*s*. Drawings.]

A.D. 1863, March 13.—N° 680.

BARLOW, Henry Bernoulli.—(*A communication from Alexander Frey.*)—" Certain improvements in looms for weaving."

" The nature of this invention consists in supporting the bobbins " or cops containing the yarn or thread of which the warp is " composed in a creel or on spindles fixed on a board placed at " the back of and forming part of the loom. The warp threads " are guided by a plate with perforations or rack teeth or a reed, " and they are sized and dressed by passing through a sizing " trough and revolving brushes before they are taken to the " *healds*.

"The invention also consists in making the warp threads and "the fabric, when woven, pass between rollers covered with india-"rubber or other suitable material, and in imparting an equal "motion to both pair of rollers, either by an endless chain and "toothed wheels or by toothed gearing, so as to keep the delivery "of the warp and the take up of the fabric uniform."

[Printed, 10*d*. Drawing.]

A.D. 1863, March 18.—N° 721.

DONBAVAND, William, and CRICHTON, David.—"This "invention consists in improved arrangements of machinery or "apparatus to be applied to the taking-up and letting-off motions "of the loom." The patentees claim,—

"First, in any arrangement of machinery or apparatus of alter-"nate or double action motion of levers and propelling catches, "working a ratchet wheel or wheels, producing decreasing speed "in the cloth beam, and encreasing speed in the yarn beam. The "employment of an eccentric or crank or cam of any required "shape, fixed to the tappet shaft or other convenient part of the "loom, so that the results of the eccentric or crank or cam which "works the double-action levers will cause each of them to "advance and retreat on the ratchet wheel or wheels in the time "of one revolution of the tappet shaft, or every two picks of the "loom.

"Secondly, the arrangement and apparatus for working the "double-action levers and propelling catches which turn a ratchet "wheel or wheels, by means of connecting apparatus from the "lathe sword of the loom.

"Thirdly, the arrangements of machinery and apparatus of "single-action ratchet wheel motion from two ratchet wheels, one "having more teeth than the other, and equally or differently "pitched in their diameters, worked by an eccentric or crank or "cam from the tappet shaft or other convenient part of the loom, "or by means of connecting apparatus from the lathe sword of "the loom, for the purpose of producing a compensating and "regulating mechanical action in the single-action ratchet wheel, "the effect of which is to change the few different velocities that "can be obtained from the single-action ratchet wheel motion "into continual changing motion of the said ratchet wheel, and "thereby produce a more perfect taking-up and letting-off motion

" for weaving cloth than has been obtained from previous arrange- " ments of the single-action ratchet wheel motion.

" Fourthly, the application to the aforesaid compensating and " regulating motion of a ratchet wheel or wheels of an eccen- " tric or cam fixed to the motion wheel or other revolving wheel " or shaft, for moving the lever which carries the holding catches " backwards and forwards by the revolution of the said eccentric " or cam, and thus producing a changing or crossing motion of " velocities in the decreasing or increasing motion of the said " wheel.

" And, fifthly, the employment of a taper slot in the propelling " lever, which works the ratchet or motion wheel of the double- " action or single-action motions, the slot decreasing in width " from the part near the centre of the lever to the outer end of " the lever."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1863, March 18.—N° 725.

TAYLOR, William Edward.—(*Provisional protection only.*)— " Certain improvements in machinery for reeling, winding, warp- " ing, and beaming yarn." "In machinery of the ordinary " construction for reeling and winding yarn the cops or bobbins " are placed upon fixed skewers or spindles, and the yarn is " drawn off them and wound on reels or bobbins." This invention " consists in giving rotary motion by bands or pulleys to the " spindles on which the cops or bobbins are placed, whereby " any additional amount of twist can be given to the yarn."

" In machinery of the ordinary construction for warping and " beaming, the bobbins on which the yarn is wound are placed " on skewers or pegs supported horizontally in a creel, and in " unwinding the yarn is draw off the bobbins and imparts a " rotary motion to them; this drawing off puts a considerable " strain or drag on the yarn, and causes frequent breakages." The inventor fixes the bobbins on stationary spindles, and draws " the yarn through a guide placed in line with the axis of the " bobbin; the flange over which the yarn is drawn is made of " metal or other material having a polished surface to prevent " friction, or a light flyer is mounted on the fixed spindle to guide " the yarn; by this means the tenderest yarn can be unwound " *without breaking*; and when the yarn is draw off from the

" upper end of the bobbin an additional twist for each layer on " the bobbin is put in the yarn. When it is requisite to give a " greater amount of additional twist to the yarn," the inventor imparts "rotary motion to the spindles and bobbins by means of " bands and pulleys."

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 18.—N° 726.

KILSHAW, Henry.—(*Provisional protection only.*)—" Certain " improvements in looms for weaving." The object of this invention " is to vary the motion of the lay, so as to obtain the " requisite dwell for the passage of the shuttle across the shed." The invention " consists in making the connecting links with a " joint at or near the centre of their length. The end of the link " jointed to the lay is provided with two stop pieces, bearing alter- " nately against the lay swords above and below the joint pin; " the joint in the connecting links allows them to yield in turn- " ing over the back centre of the cranks, thus producing the " required dwell in the motion of the lay. The upper stop piece " comes against a spring, for assisting the connecting link back " to the lower stop."

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 21.—N° 757.

HARTLEY, Edmund, CLEGG, John, MELLODEW, Thomas, and MELLODEW, James.—" Improvements in looms " for weaving." The patentees claim :—

" Firstly, in reference to making the shed in looms, the employ- " ment of two endless tappet chains or equivalent apparatus " acting upon opposite sides of a lever, and situate on the same " side of the centre of motion on which the said lever turns.

" Secondly, the application of an endless tappet chain for " determining whether the picking motion shall take place at the " one or the other side of the loom."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1863, March 31.—N° 828.

FORREST, William, and DUCKWORTH, Hindle.—(*Provisional protection only.*)—" Improvements in looms for weaving."

The inventors say:—" Our invention relates, firstly, to the " traverse of the slay or lathe." Our improvements consist in " the arranging the bearings which carry the ends of the crank " arms working the sword arms, or lathe, or slay, in such a " manner as that their positions may be altered by raising or lowering them at pleasure, by which means we are enabled to regulate " the traverse of the lathe or slay, in order to accommodate the " loom to different kinds of goods and qualities of yarn. The " invention herein described may readily be applied to existing " looms, by simply attaching moveable bearings to the lathes or " slay, or to the sword arm, as described.

" Another method of carrying out the object of this invention " is as follows:—At the back of the sword arms, and in suitable " position, we attach or cast to the said arms a rib or projection, " through which are a number of holes; these holes are made at " a suitable distance apart the whole length of the rib or projection; the end of the crank arm (which is to be attached to " sword arm) is formed so as to clip or span the rib or projection " on the sword arm, and is attached thereto by means of a pin " being passed through a hole in the clip on the end of the crank " arm, and through one of the holes in the rib or projection on " the sword arm; the traverse of the lathe or slay will be decreased " or increased accordingly as we attach the ends of the crank " arms to the higher or lower holes in the ribs or projections on " the sword arms; we thus regulate the traverse of the lathe at " pleasure.

" The second part of our invention relates to the ' wing,' which " in looms as heretofore constructed, requires lifting over the " ' frog ' at each and every pick, except in case of concussion, or " when from any cause the shuttle does not ' shed ' properly. " Our object is to dispense with the usual lifting of the wing, by " which means we are enabled to run a fast reed loom as quick, " or pick as often, as with a loose reed loom, which we " effect as follows:—On the end of the stop rod we affix a lever " which projects in the direction of the breast beam, and on the " end nearest thereto is a lug or projection, inclined at its end " (nearest the stop rod) to a suitable angle; immediately under " this lug or projection is a bowl or pulley working on a stud " fixed to the loom side. On the backward traverse of the lathe " or slay, the lug or projection slides on the bowl or pulley, carrying the wing *over* and clear of the ' frog,' except when from " *any cause the shuttle* does not shed properly, in which case the

" finger or lever at the back of the lathe or slay drops, the wing " falling and coming in contact with the frog stops the loom as " usual."

[Printed, 4*d*. No Drawings.]

A.D. 1863, April 1.—Nº 835.

HINDLE, JAMES, CALVERT, WILLIAM FIELDING, and THORNTON, EMANUEL.—" Improvements in looms for weav- " ing." First, the " improvements relate to that portion of looms " called the connecting rods or crank arms used for communi- " cating motion from the crank shaft to the lay, slay, or batten, " and consists in making each of the aforesaid rods or arms with " an intermediate joint between the two joints connecting it " with the crank and lay. The said intermediate joints are formed " with partly squared ends or stops for holding the rods or arms " perfectly rigid during the time the weft is being beaten up, but " allows the joints to be turned when the crank has passed the " centre for the return stroke, and thereby cause the arms to be " thrown out of a straight line, and consequently shorten them to " the extent of the angle that one portion bears to the other, " thus bringing the lay back from the front to the bottom centre " much quicker, and from the bottom to the back centre much " slower, than by the ordinary method."

Secondly, the " improvements consist in causing levers put in " motion by the stop rod to come in contact with a bracket on " the crank arm, and causing them to be thrown into an angular " position so as to allow the cranks to proceed without continuing " the forward motion of the lay, and thereby avoid the concussion " and consequent wear and tear common to the ordinary loom, " and also prevent the breakage of the yarn by the shuttle being " caught or trapped in the shed.

" When the shuttle has to be delivered the levers are pressed by " the projections on the crank arms and push back the swell " fingers, and thereby relieve the shuttle in the box previous to " the commencement of the pick, and remain in the same position " until the shuttle is boxed on the opposite side."

[Printed, 10*d*. Drawing.]

A.D. 1863, April 4.—Nº 861.

GIMSON, JOSIAH.—(*Provisional protection only.*)—" Improve- " ments in the means of actuating shuttles in looms for weaving narrow fabrics."

The "improved means consists in the application of a screw, " or it may be termed a series of screws, on the same shaft, one " for each shuttle. The thread of such screw is of rapid pitch " and takes directly into the shuttles, sections of screws being " cut therein for the reception of the thread. This screw shaft is " rotated first in one direction and then in the other, whereby " the shuttles are propelled to and fro through the sheds formed " in the warps, a shuttle being transferred from a screw on one " side of the warp to the other screw on the other side. All " the shuttles move in the same direction at same time, " therefore the one shuttle leaving a screw makes room for " the other shuttle coming on belonging to the adjoining " warp."

[Printed, 4*d*. No Drawings.]

A.D. 1863, April 6.—N° 870.

BURWIN, John.—The patentee says:—" This invention relates " to pickers made of sizing or prepared animal hides, which heretofore have been made with sharp angles on account of the " method adopted in their manufacture, and which sharp angles " are very objectionable in use, as they cut the straps and catch " the weft, which is thereby damaged. My improvements " consist in rounding or removing these sharp angles, which I " effect by means of dies or moulds properly formed, into " which the pickers are placed, and pressure applied thereto " by lever, screw, or other suitable means of applying pressure."

[Printed, 10*d*. Drawing.]

A.D. 1863, April 7.—N° 873. (* *)

GILBEE, Henry.—(*A communication from Jacques Mathevon.*)—(*Provisional protection only.*)—" A new composition for dressing " and preparing silk, cotton, and woollen tissues and fibres, and " also mixtures of the same."

This composition is composed of the following materials;—Brazilian tapioca, fig juice, pearl moss (called in French, mouse perlée), vulcanized caoutchouc, and the juice of mulberry leaves.

It " can be applied to dressing and preparing all kinds of tissues " made of silk, wool, or cotton, and of mixtures of these substances. It can also be applied to facilitate the winding of all " fibres which have to be spun, wound, or twisted. The pre-

" paration of this dressing composition, and the proportions of " the materials of which it is composed, vary according to the " nature of the tissues or fibres to be dressed or prepared."

[Printed, 4*d*. No Drawings.]

A.D. 1863, April 9.—N° 893.

COOKE, David James.—(*Provisional protection only.*)—" Im-" proved compounds or compositions for sizing, stiffening, and " coloring yarns and textile fabrics." The inventor says, " For " sizing and coloring worsted, braid, and fine cotton yarns, I " mix about twenty pounds weight of farina or potato flour, " twenty pounds sago flour, fifteen pounds of rice flour, and six " pounds of glue, with sufficient water to make it of a suitable " consistency, and add to the said mixture or compound any " suitable coloring matter to give the materials the desired tint " or color; the said mixture will be sufficient for about one " hundred and twelve pounds weight of worsted braid. I make " gelatine size for stiffening grey, white, or colored goods made " of cotton, linen, or other fibrous materials, whether in the state " of yarn or woven fabrics, by mixing about two hundred and " eighty pounds weight of rice flour, two hundred and eighty " pounds weight of wheat flour, one hundred and twelve pounds " of farina or potato flour, fifty-six pounds of sago flour, and " sixteen pounds of glue, with a sufficient quantity of water to " make it workable, and add the necessary coloring matter, as " already described."

[Printed, 4*d*. No Drawings.]

A.D. 1863, April 11.—N° 922.

MACLURE, Alexander Fortay.—" This invention relates to " the arrangement and construction of certain parts of the me-" chanical details of looms, so as to obtain by means of a positive " movement a great variety of patterns in the fabrics produced. " Under one modification or system of arrangement for actuating " the heddles in the required sequential order two levers are " centred upon a stud carried in the loom framing. These levers " extend towards the front of the loom, and they are slotted at " the central parts, so as to admit of the driving shaft passing " through them, and of their reciprocatory movement in a vertical " direction. The levers are actuated by two cams on the driving

“ shaft, which act on pulleys fitted to the levers, and cause them
“ to rise and fall alternately. The front ends of the levers are
“ connected by vertical links to two knife-edged lifting bars which
“ are arranged beneath. These lifters traverse up and down in
“ guides which are formed in a pair of standards fixed to the
“ floor, and extending parallel with the loom framing. On the
“ wiper shaft of the loom is fitted a cam which gives a slight
“ vertical movement to a rod **T**-shaped at its upper extremity,
“ and carrying therein a series of pins, which extend through the
“ **T**-piece on both sides. The movement of this rod up and
“ down brings the row of pins alternately opposite two rows of
“ holes formed in a small rotatory barrel, similar to the barrel of
“ a jacquard machine. This barrel moves in unison with the
“ shedding action of the loom, and carries with it an endless chain
“ of cards perforated to produce the required pattern. Each pin
“ in the **T**-shaped rod is opposite one of the long vertical rods
“ which are connected to the heddle levers. These rods are kept
“ in one direction by means of helical springs, so long as the
“ pins in the **T**-shaped rod enter the holes formed in the endless
“ chain of cards, but when the solid card intervenes, the opposite
“ end of the pin pushes the contiguous rod back, and this brings
“ one of the hooks which are formed on the rod under the edge
“ of one or other of the lifters.”

“ In connection with this mechanical arrangement is one for
“ causing the shuttles to be operated in any desired order for the
“ purpose of varying the colours of the figures or other ornamental
“ effect. A cam is arranged on the wiper shaft, which
“ imparts a horizontal reciprocatory movement to a lever, the
“ front part of which is forked so as to form a pair of pawls,
“ either of which may be caused to take into the teeth of a ratchet
“ wheel. This wheel is carried on a stud which projects from the
“ loom framing, and the wheel is fast to a disc, to the edge of
“ which segmental projections are attached. As the forked lever
“ traverses to and fro with the motion of the cam on the wiper
“ shaft, the pawls are thus placed in position to draw the ratchet
“ wheel round either in one direction or the other, according as the
“ pawls are caused to rise or fall, or the lever may be held midway
“ so as not to affect the wheel at all. This movement in the
“ vertical direction is obtained from the lifters before referred to,
“ thus, if the lever is depressed, the upper pawl takes into the
“ teeth of the ratchet wheel, and it is drawn round in the back-

"ward direction, so as to cause the shuttles to be operated in a "given sequence, and vice versa. The segmental projections "traverse in contact with a pulley carried at the upper end of a "bell-crank lever which is connected to the rod of the drop box. "The segmental projections being fastened to the wheel according "to a predetermined order of arrangements, it follows that when "the wheel is put in motion that the cells of the shuttle box "will be brought in a line with the shed in the same order."

"Connected with these improvements is an arrangement for "regulating the take-up of the woven fabric in accordance with "the particular kind of weft that is thrown in."

[Printed, 1s. Drawings.]

A.D. 1863, April 14.—N° 937.

COMBE, John, and SMALPAGE, John Henry.—"Improvements in the action and arrangement of machines for winding "cops; in the construction and arrangement of hanks for holding cops for warping purposes; in the formation of shuttles "for receiving cops; and for apparatus for packing and securing "cops in shuttles; one part of which improvements, consisting "of a spring clutch, is applicable to machines in general."

The invention consists, "firstly, in giving a positive rising "motion to the spindles of cop-winding machines by means of a "shaft placed in the lower part of the machine, on which shaft a "boss with collars is keyed fast opposite each spindle, a lever "with a spring strap clasping round the boss projecting towards "and under the lower end of the spindle, so that when a slow "motion is given to the shaft the friction strap embracing the "boss will cause the lever end to raise the spindle during the "winding of the cop, the friction of the strap round the boss "being so tempered by a screw that the lever end may be "depressed by the hand to a certain space below the spindle, so "that during the time the lever end is rising through this space, "the spindle, being stationary, allows the first portion of the cop "to be formed on its top, and before it begins to rise by the "action of the lever on its lower end.

"Secondly, in a spring clutch for stopping or starting the rotation of the spindles of cop-winding machines as required, in "*which the boss of* the spindle wheel revolves freely in a socket, "*in which it is retained* from rising out of gear with the driving

" wheel by a collar screwed on the lower end of its boss. The " upper portion of the spindle wheel is made to receive a moder- " ately stiff spring in the form of a scroll, so that the end of the " scroll leads towards the axis of the wheel in a direction con- " trary to its motion. The spindle wheel is bored out to allow " the lower end of the spindle to slide freely up and down and " revolve freely in it, and the lower end of the spindle is formed " with two flat sides, to which a small steel socket is fitted, so " that the spindle slides freely up and down in the socket, but " must revolve with it. The lower end of the socket is made " with an eccentric swell which drops freely within the wide part " of the spring scroll, but as the spindle wheel revolves the inner " end of the spring scroll catches the eccentric swell, and thus " carries the socket and spindle along with it in its rotation. The " upper part of the steel socket is turned in a groove to receive " the forked ends of a sliding bar, the rising of which, by with- " drawing the eccentric swell from the plane of the spring scroll, " will cause the spindle to stop, and the depressing of which will " cause the eccentric swell to be caught by the spring scroll and " set the spindle in motion again as required.

" Thirdly, in a more compact and simpler arrangement of the " parts of cop-winding machines, in which the tension lever and " stopping lever are mounted together and removeable in pairs, " the stopping lever rocking on each side of a vertical line and " actuated by the elongation of a spiral spring; in the use of a " compressible spiral spring, acted on by a screw for giving a " variable and adjustable tension to the tension lever of cop- " winding machines for winding from the bobbin or the hank; " and in the construction and arrangement of swifts, for carrying " the hanks from which cops are to be wound, of two or more " pairs of jointed arms retained by elastic bands, and of two or " more pairs of fixed arms radiating from a nave or centre which " revolves on pivots and is acted on by a retarding friction lever, " one end of which is connected with the tension lever, so that " the retarding pressure of the friction lever is removed from the " nave, and the swift is liberated by the approach of the tension " lever to the spindle on which the cop is being wound.

" Fourthly, in carrying cops for warping purposes on tubes " arranged in suitable proximity and inserted into the bars of a " wood framing or grating, such tubes projecting on the opposite " side of the wood framing from that to which the yarn ends are

" to be taken to the back rollers of the loom or warping machine. " Two such wood framings, of a sufficient height and length to " contain the required number of cops, are arranged in the form " of a V with the apex towards the warping machine, and with " the tubes projecting inwards, and a sufficient space between the " two framings at the narrow end to allow of a cop being slipped " on to the tube, which is made of such a size as to pass easily " through the central hollow of the cop, and the inner end of " which tube is provided with a smooth eye through which the " yarn from the cop is then passed, and through the tube and " bar, in which it is inserted by means of a small wire, from the " end of which the yarn is taken hold of on the other side of the " wood framing, to which guide bars are fixed, over which the " yarn ends are passed as they converge towards the loom or " warping machine.

" Fifthly, in making shuttles open at the back to receive the " cop, the opening being made of such a width that the cop " requires to be flattened by pressure as it is inserted into the " shuttle, the upper and lower surfaces of the hollow into which " it passes being slightly furrowed across and made a little wider " within, so as to retain the cop in its place without the usual " spring cover required for cop shuttles, an elastic band hooking " over a wire pin being stretched over the cop so as to close on " and retain the last coils of the cop till they are woven off; in " making shuttles with two delf eyes communicating by an open " groove in the top of the shuttle, so that the yarn end from the " cop is passed through one eye, along the open groove, and " through the other eye at the centre of the shuttle; and in " using a lever carrying two pins linked to a pressing bar in connection with a bed to receive the shuttle, by which apparatus, " a cop being placed under the pressing bar, and the hand " applied to force down the lever, the cop is flattened by the " descent of the pressing bar, and then, being caught by the " inner end of the lever, which is cranked upwards so as to " advance in a horizontal direction, the cop is forced into the " shuttle in its compressed state."

[Printed, 1*s*. Drawing.]

A.D. 1863, April 16.—N° 961.

CLARKE, Thomas Alfred William. — (*Provisional protection only*).—" This invention relates to a novel arrangement of

" parts for effecting the driving of shuttles, the object being to " ensure the proper action of the shuttle. The driver is a sliding " rod provided with teeth or projections for taking hold of the " shuttles, and traversing them to and fro through the shed. " These teeth are so situated on the rod that while the one that " engages with the shuttle for traversing it in one direction is " operating, the other is out of action and clear of the bearings " in which the driver slides; they are brought alternately in " position for working the shuttles by the rocking of the driver " in its bearings. Fitted to the extremity of the driver is a rack " which gears into a pinion operated by a crank arrangement," " and by this means the to-and-fro motion is given to the " driver."

[Printed, *4d.* No Drawings.]

A.D. 1863, April 17.—N° 965.

RICHMOND, JAMES, RICHMOND, THOMAS, and HARLING, DANIEL.—(*Provisional protection only.*)—This "invention con-" sists in a novel arrangement and combination of apparatus for " regulating the tension and delivery of yarn from the warp beam " during the process of weaving; such arrangement of mechanism " may be thus described:—On the back framing of the loom and " beneath the warp beam is a lever provided with a slot having " its fulcrum and working loosely upon an upright shaft, such " lever being actuated and caused to reciprocate by means of a " rod to which it is attached, in connection with the slay of the " loom, such rod having a lateral motion given to it by means of " a bell-crank lever, through one end of which it is inserted, " allowing it to move at its point of contact within the slot of the " aforesaid lever, thereby increasing the throw of such lever as " the rod is gradually moved or brought nearer to its fulcrum. " To this slotted reciprocating lever a pawl or catch is attached, " giving motion to a ratchet wheel secured to the said upright " shaft, and transmitting by means of a worm and worm wheel " a regular and uniform delivery of yarn from the warp beam; " the yarn so delivered is caused to pass over a yielding bar or " rod, such bar or rod exerting an even pressure upon the warp, " regulating its tension by means of a weighted lever, and govern-" ing through such weighted lever and aforesaid apparatus the " delivery and tension of the yarn."

[Printed, 4d. No Drawings.]

A.D. 1863, April 21.—N° 992.

YEADON, HUDSON, YEADON, EDWIN, YEADON, SAMUEL, and YEADON, JOHN.—"Improved healds for weaving." "These "improved healds are made of steel, iron, brass, zinc, or other "suitable substance, such healds, also termed eyelets, consisting "of bars, strips, or pieces," "the said eyelets or healds being "made with one, two, three, or more holes or orifices through the "same, with any form of eye, whether circular, square, or otherwise, as may be desired. These healds or eyelet pieces are "arranged in or on frames of cast-iron or other substance, their "ends being secured on steel or other wires or rods."

[Printed, 8*d*. Drawing.]

A.D. 1863, April 22.—N° 1005.

LEE, JAMES, and DAWSON, EDWIN.—"Improvements in "looms for weaving." The patentees say,—"The objects of our "invention are, first, to hold out the cloth or fabric while in the "act of weaving better than heretofore, and thus reduce the friction on the yarn or warp threads by the reed, and thereby prevent a great amount of breakage of yarn.

"Secondly, to keep the cloth or fabric in a straight line, and "impart to the selvages a forward as well an outward motion, so "that they are kept tight and thereby enabled to resist the drag "of the weft, which takes place when the shuttle is thrown from "one side of the fabric to the other, by which means a more even "selvage is obtained.

"Our improvements consist in the employment of one or more "screwed rollers with right and left threads, either of the ordinary V "kind or round topped, and with single, double, or more threads, "to present a greater or less angle to the cloth or fabric; the "said screwed roller or rollers is or are placed in a suitable frame "or frames bolted or otherwise fastened to any convenient part of "the loom, so that the screwed roller or rollers may be brought "in contact with each side of the cloth or fabric and driven by an "intermittent motion transmitted from any working part of the "loom through or by wheels, levers, springs, weights, chains, or "any other suitable appliances which will drive the screwed roller "*or rollers at* a greater speed than that at which the cloth or "*fabric is* made.

"We also employ a roller or rollers covered with a soft yielding "substance, such as india-rubber, gutta gercha, leather, or other "suitable material, which roller or rollers is or are placed in the "frame above mentioned, but on the opposite side of the fabric "to that of the screwed roller or rollers, and acts or act to press "the cloth against the screwed rollers to give them sufficient hold "on the cloth to produce the outward and forward motion before "mentioned."

[Printed, 8*d*. Drawing.]

A.D. 1863, April 27.—N° 1046.

SPILL, George, BRIGGS, Thomas James, and SPILL, Daniel.—(*Provisional protection not allowed.*)—The inventors say, "—This invention consists of a new mode of producing artificial "leather or tanning vegetable bodies or fibres, and rendering the "same applicable to the manufacture of mill straps, driving bands, "and like bodies.

"We claim for the imbueing of wool, woollen substances, cotton, "linen, jute, flax, or any fibrous substances, either in the form of "prepared fabrics, or in the form of warps, wefts, or any other "form whatsoever, with glue, gelatine, or any gelatinous sub-"stance, either animal or vegetable, and from whatsoever source "derived, to be combined with the substances either in the wefts, "warps, or webs, or in the actual process of fabrication, and after-"wards for the precipitating of the gelatine into the body of the "said substances by any astringent substance, such as sulphate "of alumina, catechu, bark, gallic acid, or gallate of iron, and for "the impregnation of the same with any metallic base or bases.

"We further claim for imbueing the aforesaid fibrous sub-"stances with india-rubber, or caoutchouc, or any compound "thereof."

[Printed, 4*d*. No Drawings.]

A.D. 1863, April 27.—N° 1056.

HUDSON, William, and CATLOW, Christopher.—"Im-"provements in looms for weaving." The patentees say,—"Our "invention refers, firstly, to the motion for making the shed, "and to that arrangement thereof in which a revolving tappet is "employed, acting at its upper and lower sides upon rollers con-"nected to the treadles.

"According to our invention we mount these rollers upon an "arm through which the tappet shaft passes, so as to act as a "guide and support for it. This arm is connected at its lower "end to a treadle, which is thus caused to vibrate in order to "form the shed. As applied to the arrangement above-mentioned "for making the shed, we cause one treadle to give motion to "another by jointing the two together.

"Another improvement upon the said motion consists in "mounting one or both of the rollers acted upon by the tappets "upon springs, so as to yield when required.

"Another part of our invention relates to the beating-up "motion, and consists in forming the connecting rod and slay as "one rigid part, the latter being jointed to the lathe sword.

"Another part of our invention relates to the motion for taking "up the work or for letting off the warp. For this purpose we "use a plain wheel and clip, or friction surface, which is brought "into action by a lever acting thereon within the diameter of the "work or warp beam.

"Another part of our invention relates to a method of regulat-"ing the tension of the warp threads accordingly as they are "required to be tightened or loosened during the operation of "weaving. For this purpose we cause a rod to bear upon them "about half-way between the back beam and the healds, by pre-"ference between the rods inserted in the warp. A method we "adopt for bringing this rod into action consists in causing it to "be elevated or depressed by the direct action of a cam or excen-"tric placed upon the crank shaft, but we can also employ a "lever or levers as intermediate apparatus between the said crank "shaft or other moving part and the rod."

[Printed, 10*d*. Drawing.]

A.D. 1863, April 28.—N° 1061. (* *)

CRABTREE, SAMUEL.—"Improvements in balling motions."

The patentee says,—"My improvements consist in forming "balls of slivers of wool or other fibrous materials, or warps, in "such a manner that when in course of the successive operations "these balls are placed to be worked upon by the machines "following each other in the processes of working wool or other "*fibrous materials*, or warps, the sliver or warp is so drawn out "*from the inside of* the said ball that the twist which the said sliver

" or warp has had hitherto is removed, and thus a considerable " advantage gained in the working of slivers of wool or other " fibrous materials, or warps. I effect this by drawing off the " sliver or warp from the inside of the ball through the circumference of the same, instead out of the ends as hitherto, and " for this purpose I place in the middle of the band or bobbin " upon which the balls are usually formed, in a radial direction, " a fast or moveable barrel, tube, or spindle, through the openings " of which the sliver or warp at the beginning of each ball is " drawn and fastened at the outer end, having formed a corresponding groove in the balling roller or rollers or drum for this " tube or spindle to revolve in. I then form the ball by the " usual means, the tube or spindle preserving an opening through " the same; I am thus enabled to draw off the sliver or wharp, " when required to be further worked upon, from the inside " through the circumference, by which means the sliver is made " to come out from the ball perfectly straight and open."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1863, May 6.—N° 1127.

SAGAR, Thomas, and WILKINSON, John.—This invention relates to weft forks for power looms. The " improvements consist in supporting the weft fork in a sliding bracket, which is " adjustable vertically, and moves horizontally, and when the " weft fork is operated upon through the weft breaking, the slide " which carries the weft fork moves in a straight line and operates " upon the weft fork lever, thereby stopping the loom. The weft " fork lever and the slide or bracket which carries the weft fork " are not connected together, but may be connected if required."

[Printed, 8*d.* Drawing.]

A.D. 1863, May 7.—N° 1141.

WALKER, John.—(*Provisional protection only.*)—The inventor says,—" My invention relates, firstly, to the construction of excentrics or cranks, their connecting links or rods, and their combination with the driving pulley, disc, or other mechanism, such " mechanism being applicable to looms and to the doffing motions " of carding engines, and to other machinery where excentric or " crank motions are required. And my improvements consist in " *making the connecting* links or rods with a slit in them length-

" way from the hole in which the excentric or crank works, and " in placing a screw through the link or rod, so as to be able to " close or open the slit, and thus tighten or slacken the grasp of " the link or rod upon the excentric or crank. In fitting the " connecting rod to work against the side of a pulley or disc, my " invention consists in boring the hole in the link or rod for the " excentric or crank so as to leave a shoulder on the inside, the " excentric or crank pin being made with a shoulder to correspond " so that when secured to the side of the disc or pulley the link " or rod will be prevented from moving sideways or getting from " the excentric or crank."

"The second part of my invention relates to the taking-up " roller of looms, and consists in forming such rollers of wrought " sheet iron, or in covering them with wrought sheet iron " roughened on the surface, when rolled cold or hot, by being " passed through rollers which have roughened surfaces."

[Printed, 4*d*. No Drawings.]

A.D. 1863, May 8.—N° 1152.

GRIMSHAW, John Smalley.—(*Provisional protection only.*) —The inventor says,—" This invention consists of measuring or " registering the measurement of cloth as it is woven in the loom, " which I accomplish by fixing on the emery beam a wheel or " wheels, with a marker or indicator, so that as the said wheel " turns with the emery beam a certain number of revolutions the " marker or indicator will mark the cloth every yard or other " length required, as it is woven. Or it may be measured by a " marker or indicator on the temple or various other parts of the " loom, but I prefer measuring it by the emery beam."

[Printed, 4*d*. No Drawings.]

A.D. 1863, May 9.—N° 1167.

BOALER, William.—" This invention consists in the substi" tution of a peculiar kind of cloth, consisting of many threads " and webs all bound together in the weaving and forming one " cloth, either twill, plain, or chain, for the ordinary dryer felt " now in use, for the purpose of expelling and absorbing the " moisture from and modifying the drying of paper while it is " passing over the surface of heated cylinders."

[Printed, 6d. Drawing.]

A.D. 1863, May 11.—N° 1179.

SHORROCK, Christopher, and SHORROCK, William.—" Certain improvements in power looms for weaving."

The improvements consist, firstly, in apparatus for applying the break to the warp beam. " Upon one end of the warp beam " is fixed a cylindrical bush supplied with a ratchet wheel, such " wheel being acted upon by a pawl or catch secured to a grooved " ring or hoop encircling the afore-mentioned bush, a strap of " leather or other suitable material being fitted into the groove of " this ring, having the pressure exerted upon it by means of a " clip or break, and is so arranged that when such clip is tightened " it shall exert a pressure upon the warp beam through the " medium of the afore-mentioned pawl and ratchet wheel during " the operation of weaving; but should any reverse or backward " motion be given to the warp beam, the pawl or catch slips over " the teeth of the ratchet, thereby allowing the bush encircling " the warp beam to revolve freely within the grooved ring without " any pressure, the only pressure upon the warp beam being " effected by the contact or resistance of the pawl or catch against " the ratchet wheel. Upon the adjustable pressure clip is a small " bowl, acted upon by a spring in such a manner that it shall " always cause an even tension to be given to the warp."

Secondly, " in the employment and use of bowls or pulleys " secured below the healds and above the treddles, to which the " healds and heddles are attached by means of straps; such straps " when the treddles are in motion partially wrap or fold upon the " afore-mentioned pulleys, so causing by their connection with " the healds a constant rise and fall or shedding to such healds."

[Printed, 10*d*. Drawing.]

A.D. 1863, May 12.—N° 1192.

WHITELEY, William. — " This invention relates to looms " where two or more shuttles are employed, and consists in " arranging and applying the mechanism or apparatus in conjunction with a jacquard machine, so that the loom will be self-" acting in the production of the various figures or designs required in the fabric. The improvements have reference more " particularly to the box motion of the loom, the shuttle boxes " being acted upon by the lifting and sinking bars of the jacquard, " which bars are made to project through the frame of the

" jacquard, and act upon hooks and levers connected directly to " the shuttle boxes. By this mode of arranging the mechanism " the boxes are raised or lowered as required by the jacquard " itself, in place of the jacquard being made to govern a special " mechanism for lifting the boxes. It is further proposed to " adapt a reversing motion to the cylinder of the jacquard, " whereby the shuttles are made to return to their former position " without disconnecting the boxes and jacquard, and consequently " their relative positions to each other are always maintained."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1863, May 12.—N° 1197.

BROOMAN, Richard Archibald. — (*A communication from Pierre François Dacheux, and Gustave Lefebvre.*) — " Improve- " ments in machinery for preparing, dressing, and winding " cotton, woollen, flax, silk and other warps." " The character- " istic features of the invention are, first, the carrying on in one " machine of the three operations of taking the threads from the " bobbin, dressing, and warping or winding on the warp beam ; " second, the particular arrangement of the racks or nests with " pierced plates for guiding the threads, and a break common to " all the bobbins ; third, the gathering plate ; fourth, the arrange- " ment of the dressing cylinders with variable pressure ; fifth, the " arrangement of the revolving brush with intermittant action ; " and sixth, the drying or fanning of the threads between two " bridges perforated with holes."

[Printed, 10*d.* Drawing.]

A.D. 1863, May 13.—N° 1201.

PARKINSON, Thomas, and TAYLOR, Francis. — " Im- " provements in machinery for weaving, sizing, dressing, and dye- " ing." The " improvements in machinery for weaving consist " in applying an eccentric roller to the back of the loom, over " which the warp passes in going from the warp beam to the " healds ; this roller is driven at the same speed as the crank " shaft ; when the shed is open from the passage of the shuttle " the highest part of the eccentric roller is towards the healds, " *thus relieving* the warp from strain ; and when the reed is beat- " *ing up the weft* the eccentric is in the opposite direction, to

" tighten the warp. The requisite tension is given to the warp " by a band or chain passing around the warp beam, connected " to a tightening screw furnished with a regulating nut." The " improvements in machinery for sizing, dressing, and dyeing " consist in agitating the liquids employed in such processes by " means of a screw attached to a vertical shaft supported in the " vessel containing the sizing, dressing, or dyeing materials; " this screw is turned round by steam or other power, and keeps " the contents of the vessel in agitation."

[Printed, 8*d*. Drawing.]

A.D. 1863, May 19.—N° 1252. (* *)

FENTON, FERRAR. — " Improvements in the treatment of " certain vegetable fibres for the preparation of textile materials " therefrom."

This invention relates to preparing and softening the fibres of tallee ramee, urtica tenacissima, China grass, Assam grass, Japan hemp and flax, Shanghai hemp, and Italian hemp, so as to render them applicable to the manufacture of fine textile fabrics, " being " spun either alone as long or short fibres, or mixed with wool or " cotton."

The materials are first boiled in a solution of carbonate of potash or of soda, or in a mixture of soda ash and quicklime, or of carbonate of potassa and quicklime, with water, and then treated with hot water alone in order to remove any adherent matter. The fibres are next beaten by a fulling mill or " dolly," during which operation cold water is allowed to play upon them, after which they are submitted to the " well known bleaching process." To give the fibre, after bleaching, a " silky finish," it is passed through a bath of dilute spirit of salt, and then through a bath of water, soap being employed to " finally destroy the acid." The fibres are then dried, and the short ones " devilled," while the long ones are passed through any suitable softening and breaking machine. The fibres of China grass, rheea, and tallee ramee, are prepared for combing by maceration in a scalding bath of soap and carbonate of soda. If desirable, the long fibres of the plants may be cut to a shorter length before being treated as mentioned above. Should it be desirable to render the material uninflammable, for the manufacture of ladies' clothing, it may be immersed in a bath of tungstate of soda and then dried.

[Printed, 4*d*. *No Drawings.*]

A.D. 1863, May 20.—N° 1265.

JACKSON, Robert Rainsford, and PEMBERTON, William.—(*Provisional protection only.*)—The inventors say,—"Our invention relates to a system or mode of putting strain "or tension upon the yarn or warp in looms for weaving, and "it consists in the application of frictional arrangements to the "yarn or warp itself, instead of applying friction to the axis "of the warp beam; or it consists in the combination of friction "and weight applied to the yarn directly or to the apparatus "acting upon the yarn; or it consists in causing the yarn from "the beam to pass over an edge or rod, then under a roller "covered with elastic material, then over another edge or rod, "and then on to the healds. The yarn beam may be weighted "to a slight extent, and the roller, covered with elastic material, "may be either free, or retarded in its movements by brake or "other suitable frictional arrangements.

"Our invention also consists in regulating the amount of "tension upon the yarn by changing the position of the rods or "edges, which may be made adjustable in relation to each other "and the roller, or by changing the position of the roller in relation to the rods or edges, so as to vary the angle or amount "of bend of the yarn in passing between the rods or edges and "roller. Our invention also consists in the use of springs or "weights applied so that the frictional arrangement will give "way to the shedding action of the healds. Instead of one "roller and two edges or rods, our invention consists in the use "of two or more rollers, which are made to hold the yarn when "passed partly round each roller, and in applying frictional arrangements to retard their forward, and weights or springs to "assist their backward movements."

[Printed, 4*d*. No Drawings.]

A.D. 1863, May 21.—N° 1270.

WALKER, William.—The patentee says,—"My invention "relates to the letting off and taking-up motions of looms, and "it consists of certain improved combinations of machinery for "giving a positive motion to the letting-off and taking up rollers "or to either of them. When my improvements are applied to "the letting-off motion, a tappet is fixed to the crank shaft,

" this tappet gives motion to a ratchet wheel, to which is fixed a " worm gearing into a worm wheel fixed to the letting-off roller, " over which the warp passes; above this roller is one or more " rollers, around which the warp passes. This second roller or " rollers are mounted in levers jointed to the axle of the first " roller, and act like a vibrator; the lower ends of the levers are " connected to a friction clip passing around the warp beam, to " prevent it moving when the reed beats up. The taking-up is " effected by a projection on the swing shaft or lay sword acting " on a weighted rod jointed to the catch lever, for working the " ratchet wheel on the taking-up roller. When the shed is opened " for the shuttle to pass, the weighted rod above referred to is " partly raised by the tension of the cloth, and it drops again " when the shed is closed. In applying my improvements to " the taking-up motion to render it positive, a crank with an adjustable crank pin is fixed to the crank shaft or other shaft of " the loom; this crank pin is connected by a link to the lever, " with catches acting on the ratchet wheel, to which is fixed a " worm gearing into a worm wheel which drives a series of rollers " and the taking-up roller, around which the cloth passes previous " to being wound on the cloth roller. The take-up is varied " according to the cloth by turning a screw to which the crank " pin above referred to is connected."

[Printed, 10*d*. Drawing.]

A.D. 1863, May 25.—N° 1312.

KÖTTGEN, GUSTAV.—" An improved binding to be used for " trimming woollen cloth garments."

The patentee claims, " firstly, weaving a binding for trimming " woollen cloth garments by combining in such binding alternate " strips of woollen cloth and of the material known as 'binding,' " whether of worsted, thread, or other material, or combination " of materials, and whether arranged in a longitudinal, diagonal, " or transverse direction."

And, secondly, " the weaving of a binding for such purposes " of woollen cloth with a narrow edge of thread, silk, or other " material."

[Printed, 8*d*. Drawing.]

A.D. 1863, May 26.—N° 1321.

HALEY, ABRAHAM.—" Improvements in jacquard looms." The *patentee says,*—" My invention consists, first, in the employment

" in jacquard looms of a vibrating frame in which a cylinder is " free to revolve, having motion communicated to it by toothed " wheels from the crank shaft of the loom. A star wheel pro- " duces an intermittant motion or 'dwell' at each revolution, " during which time the frame and cylinder are caused to rise " through a lever, and at the same time to strike off the hooks to " which the harness is connected by strings. I place 'lags' with " pegs round the cylinder, which are inserted in apertures in the " 'lags' in such manner as to produce the desired pattern on the " cloth or other fabric under manufacture. I use crank levers " between the 'lags' and pegs and the ends of the needles. The " levers are kept in position by 'grids or guides, one at each end " of the cranked levers.

"My invention consists, secondly, in the employment in jac- " quard looms of an endless chain composed of pins, carrying " small pulleys arranged according to the pattern to be produced. " The chains may be adapted to any number of harness or " number to the round. The chain revolves on the cylinder or " band before described, which is mounted on a vibrating frame, " and in such manner as to rise and fall through the agency of a " lever at each revolution of the loom. When I use the chain " and pulleys the cylinder is made with grooves, the same pitch " as the pulleys on the chain, and the grooves guide the pulleys " in their places when striking the levers."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1863, May 27.—Nº 1330.

BASTOW, Arthur.—This invention relates to the "circular " box loom" for weaving "bars or stripes." The patentee places " levers fixed on an independent shaft or spindle in such a posi- " tion relatively to the parts of the loom by which the 'circular " 'loom' is usually actuated, that motion is given to them at " such times as may be required for weaving the various classes " of fabrics enumerated above. The motion thus given to the " shaft or spindle above named is communicated by means of " another lever on the same shaft or spindle to an independent " lever, which, having a projection on its end, retains the pins or " catches affixed for the purpose to the double cam, which " actuates the healds of the loom (and which in this instance is " worked by a clutch fixed on its axis) for such period as may be " requisite, thus keeping what is technically termed the 'shed'

" open. The 'bar' in the fabric having been woven during this " interval, the independent lever above named is allowed to drop " by means of a reverse motion, releasing the double cam above " named from the clutch also above named. The said double " cam is restored to its usual position by the pressure of a spring " placed on that side of it furthest from the pins or catches above " named, and the weaving is continued as ordinarily until it is " necessary for such operation to be repeated."

[Printed, 8*d.* Drawing.]

A.D. 1863, June 2.—N° 1381.

CRAWFORD, Robert.—(*Provisional protection only.*)—This " invention relates to the arrangement and construction of jacquard machinery and the mode of actuating the same in a " simple manner.

" Under one modification the harness is connected in the usual " manner to the vertical wires, skewers, or other equivalent therefor, which are hooked at the upper ends and pass up between the " bars of the draft board or 'brander.' These vertical wires pass " through the eyes of the series of horizontal needles, which are " connected in the usual way at one end to a series of helical springs. " The other extremities of the needles pass through a perforated " board which forms a guide for them, and to the end of each is " jointed a piece of wire which forms a prolongation or tongue " extending through a reed arranged parallel to the perforated " board. At a suitable point between the two the prolongation or " tongue of each needle is connected by means of a cord or wire " to one of a series of levers arranged in a suitable frame above. " The free extremity of each of these levers is bent or formed with " a prolongation extending in a downward direction, which rests " upon a cube or small rectangular piece of wood or metal. " These pieces of wood are similar to blank type, and are arranged " in a frame in parallel rows; like printers' type they are made " of different heights so as to elevate the levers more or less. " This part of the present arrangement is based upon an invention " for which Letters Patent were granted to Mr. Robert Crawford, " bearing date the 18th day of August 1855, No. 1875. The " several pieces of wood are so arranged that when the frame or " form containing them is moved along so as to bring each row " of pieces under the ends of the levers in succession, they will

" be raised more or less to suit the requirements of the pattern " which is to be produced. In front of the ends of the needle " tongues, which project through the reed, is arranged a rotatory " barrel, which has projecting parts formed on its faces in the " longitudinal direction. As the levers above are raised more or " less by the wooden or metal type, their connection with the " jointed tongues of the jacquard needles causes these parts of " the mechanism to be more or less elevated and as the barrel or " cylinder rotates its projecting fillets are so arranged as to come " into contact with the ends of the tongues when in one or other " of the positions they are caused to assume by the action of the " levers to which they are connected. The pressure of the cylinder against the tongues of those needles that are within its " range causes the harness to be operated in a corresponding " sequence, and so produces the pre-determined pattern in the " fabric."

[Printed, 4*d*. No Drawings.]

A.D. 1863, June 5.—N° 1400.

SIEVIER, Robert William.—(*A communication from Edouard Maximilien Augustin Rigo and Charles Grognet.*) — (*Provisional protection only.*) — "These improvements consist in the mode " adopted for making the cylinder of the jacquard machine (which " carries round the cards upon which the pattern is pierced) to " press in a gradual and soft manner upon the points of the " needles, so that a paper may be used instead of a cardboard." " In these improvements a soft blow is obtained, or soft pressure " at the last portion of the fall of the grid or griffe, by means of " a bar which extends from the front to the back part of the " jacquard, and which bar carries at its end a wedge-shaped piece, " which wedge-shaped piece, falling against a fixed point on an " arm or projection fixed to the frame of the jacquard, draws the " bar backward, and with it the batten to which is attached " the cylinder; this motion brings the cylinder gradually against " the needles."

[Printed, 4*d*. No Drawings.]

A.D. 1863, June 8.—N° 1413. (* *)

***BROCKLEHURST*, William Coare, CREIGHTON, Joseph, *MAKINSON*, Charles, and CREIGHTON, John.**—" Certain

" improvements in machinery or apparatus for winding yarns or " threads."

This invention "relates to that description of machinery for " winding yarn or thread called 'pin cop winding frames,' " wherein yarn is wound from the bobbin 'race' or hank on to a " wooden 'pin' or spool which is placed on the shuttle skewer " for weaving." The improvements " are designed to dispense " with such wooden spool, and to wind or form the 'cops' on the " bare spindle," the patentees stating that this "has hitherto " been impracticable from a want of apparatus to 'shape' the " 'cop.'"

The improvements "consist in a novel arrangement, combination, and application of mechanism to effect the 'winding-on' " and shaping of the 'cop,' wherein a cam in connection with the " thread guide or lever is employed to shape the 'nose' or top of " the cop, and a plate having two different degrees of slope or " angle is employed, also connected with the thread guide, to " form the cylindrical or body and the conical bottom of the cop. " A finger is also employed to bear upon the yarn to prevent it " becoming slack between the bobbin hank or race and the thread " guide, and a drag or pressure is also exerted upon the bobbin, " to regulate its revolution by means of a bell-crank lever and " spring acting upon the exterior surface of the yarn."

[Printed, 10*d*. Drawing.]

A.D. 1863, June 12.—N° 1467.

PLACE, Joseph.—(*Provisional protection only.*)—This "invention relates to the production of a material to form an " economical substitute for flour size, and to be used for sizeing " or stiffening warps, yarns, threads, or textile fabrics, and consists in the combination and admixture of kaolin or China " clay with sago, or the amylaceous portions thereof, the proportions in which the components are to be mixed being regulated " by the amount of stiffness required to be imparted; for " instance, when great stiffness is required, the amylaceous " portion should be in excess, and the China clay must predominate if less stiffness be required."

[Printed, 4*d*. No Drawings.]

A.D. 1863, June 20.—N° 1560. (* *)

BOOTH, James. — (*Provisional protection only.*)—"*Improvements in winding* machines."

The inventor says,—" My invention has special reference to the " winding machines known as Willis and Chell's Patent, and its " object is to dispense with the bobbins now used, substituting " cops. For this purpose I use a circular spindle, tapered in the " upper part, instead of the ordinary parallel one, the lower part " having a 'flat' or square adapted to the hole of the driving " pulley. In some cases it may be found desirable to place a " small removable weight on the top of the spindle to give in-" creased firmness to the cop. The cup at present in use (for " giving, in combination with the 'traverser,' the desired shape " to the bobbin of yarn), and made of wood, I prefer to make of " glass, and also to make it with a single cone internally. The " operation of forming the cop is effected by wrapping the end of " yarn to be wound round the spindle which is put in motion. " The ordinary 'traverser' causes the yarn to be wound on that " part of the spindle revolving with the cop, the conical shape of " the same causing the spindle to rise in its socket so soon as the " diameter of the cop shall be equal to the smallest diameter of " the cup. The spindle is thus gradually elevated until the " whole cop is formed of any desired length, by which time the " 'square' or 'flat' before alluded to rests no longer in, but " hangs suspended by the cop within the cup just without the " driving pulley, and consequently its motion is arrested."

[Printed, 4*d*. No Drawing.]

A.D. 1863, June 22.—N° 1563.

TWADDELL, ALEXANDER.—" Improvements in sizeing or " preparing warps." This invention "consists in applying to " the warps two separate size mixtures, one being cold and the " other hot, or instead of one of the size mixtures being used, hot " or cold water, or steam, may be employed as a moistening " agent. The warps in some cases may, in addition, be passed " between rollers supplied with a lubricating matter, such as a " mixture of tallow and starch."

[Printed, 4*d*. No Drawings.]

A.D. 1863, June 23.—N° 1579.

ROBINSON, SAMUEL, PRIESTLEY, JOSEPH, and FOULDS, JEREMIAH.—" This invention relates to means of working or " operating the healds or heddles of looms." "These improve-" ments consist in dispensing with all the treddles and treading

" tappets, jacks, jack rods, and half-moons ordinarily employed, " also the low shaft, and the gearing thereto." Instead of these parts the patentees " employ a rocking shaft supported in brackets " or fixings to the top rail of the loom. On one end of this shaft " is fixed an arm or lever connected by a rod to an eccentric stud " wheel or crank arm fixed on the crank shaft, by which motion " is communicated to the said rocking shaft when the loom is in " action. Two other arms are fixed on the said shaft projecting " over the healds or heddles, to which are suspended lifting bars " or sliding plates, which are capable of being raised and lowered " thereby and guided by suitable framing. A hooked rod is " attached to each end of each leaf of healds or heddles, and is " actuated by a spring so as to be capable of catching on the " lifting bars when at liberty to do so. Needles with double eyes " are employed (*i.e.*, each needle having two eyes), and arranged " in such manner that the two hooked rods of one leaf of healds " pass one through each eye, and are thereby actuated simul- " taneously. An ordinary jacquard or peg-lag cylinder is employed " for selecting and operating the needles, the cards or lags thereof " being arranged as usual to produce the desired movement of " the needles so as to place any pair of the hooks out of contact " with the lifting bars when required. The oscillating motion of " the cylinder is produced by means of a stud and friction roller " on one of the lifting bars entering a slot of suitable form on the " frame, which suspends the cylinder, and such motion is rendered " intermittent thereby, and by means of a drop catch, whereby " time and ease is given in the changing of the hooked rods."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1863, June 27.—N° 1616.

BRADSHAW, William, and **BRADSHAW**, James.—" Im- " provements in looms for weaving." The patentees say,— " First, we employ certain improved arrangements for maintaining " the yarn at its proper tension during the process of weaving. " We dispense with the ordinary weights which have hitherto " been attached to the yarn beam, and make the beam self- " regulating. Instead of the beam resting on brackets as hereto- " fore, we place the ends or pivots of the beam in slots at the " back of the end frames, and allow the pivots, the ends of the " beam, or the bosses upon it, to rest against cross pieces, " brackets, or rods when the yarn is pulled. We fasten one end

" of the ropes which encircle the beam to the bottom rail or to a " strong single or compound spring, and their other ends to the " back rest, or to studs fixed to the end frames. Thus the beam " is guided in slots, and is suspended against the cross pieces, " brackets, or rods, and is thereby enabled to give all its weight " to the yarn in a ratio corresponding with its continually decreasing diameter, and when the cloth beam is reversed for " letting back the cloth, the pivots of the yarn beam descend in " the slots, and the beam regulates itself.

" Secondly, we employ an improved treading motion. Instead " of placing the treddles below the tappets, as at present adopted, " we place them above, and cause them to be always in contact " by weighting them sufficiently or stringing them round a " pulley, by which means the weight of the treadles is taken off " the healds or heddles.

" Thirdly, we employ an improved picker and mode of guiding " it. We place the boss or guiding part of the picker on a fly " spindle under the fly plate instead of above the shuttle, as at " present, by which means we obtain an equal and direct action " on the shuttle, and avoid the ordinary excessive damage to the " picker."

[Printed, 10*d*. Drawing.]

A.D. 1863, July 1.—Nº 1644.

COLE, James, and COLE, James, junior.—The patentees say: —" This invention consists in weaving ornamental fabrics of wide " widths (piece goods) in a more economical manner (both as " regards speed of working and saving of ornamenting material) " than heretofore. This result we obtain by imparting into piece " goods weaving the principle of ornamentation adopted in ornamental ribbon weaving, whereby a pattern is produced on the " face of the fabric without a counterpart of any kind on the " back thereof. To this end we propose to adapt to the batten " of looms for weaving ornamental piece goods, both the ordinary " fly shuttle which carries the ground weft thread through the " shed from side to side of the fabric, and a series of smaller " shuttles which carry the ornamenting weft threads. The fly " shuttle and the ornamenting weft shuttles will in general " operate simultaneously, or they may, if occasion requires, be " caused to act alternately." " The ornamenting shuttles and " the fly shuttle we work at different levels, and form distinct

" sheds for them to pass through. The shed to receive the weft " for the ornamentation is produced by raising a selection of warp " threads higher than those which form the shed for the fly " shuttle."

[Printed, 10*d*. Drawing.]

A.D. 1863, July 4.—N° 1663.

McDONALD, John.—This invention consists in the employment " of mechanism to retain the perforated cards of the jacquard loom in position upon the jacquard cylinder during the " time of shedding." " Behind the ordinary perforated cylinder, " over which the cards are caused to pass in the process of " weaving, a roller is placed extending the whole length of the " perforations of such cylinder, the said roller exerting a uniform " pressure by means of a spring or weight in connection with the " said roller, upon the cards bedding upon the surface of the " cylinder."

[Printed, 10*d*. Drawing.]

A.D. 1863, July 4.—N° 1664.

FLUDE, Robert, and FARNDON, John.—(*Provisional protection only.*)—This invention " of improvements in the method " of driving the shuttles of looms for weaving ribbons, elastic " web, and other narrow fabrics, consists in the application of a " flexible driver for this purpose, which passes over rollers " mounted in the shuttle race."

[Printed, 4*d*. No Drawings.]

A.D. 1863, July 4.—N° 1665.

GIMSON, Josiah.—" Improvements in shuttles for weaving " narrow fabrics, and in mounting and fitting them to the " battens." This invention " consists in disposing the bobbin " somewhat centrally, that is, neither in front of nor behind the " race planks of the batten, but between them, the bearing surfaces of the race plank being so formed, arranged, and adapted " as to give room for disposing the bobbin as described, and at " the same time affording the necessary support and guidance for " the shuttle."

[*Printed, 8d. Drawing.*]

A.D. 1863, July 7.—N° 1686.

ORR, JOHN.—(*Provisional protection only.*)—This "invention " has chiefly for its object certain methods of inserting or supply- " ing weft while weaving (either by hand or power) piled or other " fabrics." "The proposed plans for the introduction of weft " into fabrics while weaving, are in a general way similar to the " methods described in the Specification of the Letters Patent " granted" to the present inventor "on the 11th day of July, " 1862, No. 1999, for the introduction of chenille fur into piled " fabrics; such modes of introduction having been found not " only suitable for introducing the fur, but also the ground or " foundation weft of such piled or other fabrics, and also for " inserting the weft of a variety of other fabrics."

"Another part of this invention consists in inserting chenille " fur into the fabrics, wherein it is used by previously placing " each 'fur shoot' in a detatched form along the length of a " fluted wire rod, having springs or pins placed along its length " at intervals, the more firmly to hold the 'fur shoot' and keep " it to its proper place. Such rods, with the 'fur shoots' thereon, " are to be inserted into and withdrawn from the cloth while " weaving, after the manner in which the wire rods are so actuated " in weaving Brussels carpeting."

[Printed, 4*d*. No Drawings.]

A.D. 1863, July 9—N° 1708.

PHILLIPSON, RICHARD, and BOND, WILLIAM.—(*Provisional protection only.*)—"Improvements in temples for looms." The inventors say:—"This invention consists in fixing within " the ordinary temple trough a stationary rod, instead of a move- " able rod or temple, and in placing thereon, at each end, a wood " or other roller, made sufficiently light to revolve by the motion " of the cloth. A pair of bushes or collars are also fixed upon " the said rod, and are adjustable thereon by means of set screws, " in order to regulate the proper position of the rollers to the " breadth of the cloth in the loom. The rollers are covered " or coated with sand, emery, smalts, glass, or other suitable " materials, and in order more effectually to increase their adhe- " siveness to the cloth, and to increase its breadth, we cut spiral " grooves in the surface of the rollers."

[*Printed, 4d. No Drawings.*]

A.D. 1863, July 11.—N° 1736.

ORR, John, BRINTON, John, and LEWIS, John.—"This " invention has for its object certain improved methods of weav- " ing by power loom what is usually called 'chenille weft cloth,' " such cloth being generally a gauze fabric, having wide spaces " between every six or other small number of warp threads to " allow of being afterwards cut up into strips called 'fur strips,' " and rewoven into hearth rugs, carpets, and other articles."

One method of carrying out the invention "is to attach to the " power loom a compound lever and break arrangement, whereby " its handle can be actuated in such a manner as to cause the " quick stopping and starting of the loom, and it is proposed to " work such compound lever and break by the weaver's foot, or " in any other convenient manner, and this compound leverage is " so contrived that when the loom is made to stop the front of " the shuttle box shall be opened in such a manner as to give " freedom to the weaver for changing the shuttle according to " the requirements of the pattern, and when the loom is started " again the front of the shuttle box will be reshut."

"This invention also comprises a more self-acting method of " changing the shuttles, whereby the moving of an index along " the surface of the pattern to be produced, shall be so arranged " as to determine the particular shoot at which the shuttle shall " be changed after the ordinary mode of effecting such change, " either by a revolving box or a slide box arrangement on the " 'lathe,' it being understood that the weaver will, while the loom " is in action, be placing the shuttle to be so changed, and the " required shuttle shall be made to pass into the shed without " any stoppage of the loom for such purpose."

[Printed, 8*d*. Drawing.]

A.D. 1863, July 13.—N° 1750.

BROOMAN, Richard Archibald.—(*A communication from Stanislas Vigoureux.*)—"Improvements in sizing or gumming " warp and weft threads." In the manufacture of certain fabrics the inventor considers it preferable to use thread but slightly twisted, and he has "found that the thread slightly twisted, and " exceptionally that without twist, separates or breaks only " because the filaments composing it are not sufficiently united " *to prevent them sliding* over each other. The present inven-

" tion consists in sizing or gumming the threads or filaments " composing the thread in sections, the distance between the " sections being varied according to circumstances, it being based " upon the solidity or strength to be imparted to the thread." The thread to be sized is passed " over rollers, and between an " engraved roller, or roller with grooves along the surface thereof, " and a clothed roller; this clothed roller takes up the gum or " adhesive material from a roller revolving partly in a trough " containing the gum, and which revolves in contact with the " clothed roller. The thread sized in sections passes on to an " endless metal belt kept heated or over heated cylinders, where- " by the thread is dried. It then passes over a roller, and is " wound upon a bobbin by a flyer, or upon any other suitable " receiver. When it is desired to size the threads continuously " over the sizing in sections a lighter size may be used."

[Printed, 8*d*. Drawing.]

A.D. 1863, July 14.—N° 1757.

COOKE, JOHN THOMAS.—(*Provisional protection only*.)—This invention relates to looms. The inventor says:—" My improve- " ments consist in means of driving the shuttles from side to " side of their work by the motion of the batten, as hereafter " explained. On a slide bar on the batten to which the driving " planks are attached I fix an axle, on which a small roller or " truck is fitted. On a framing, independent of and under the " batten, I fix a template or grooved guide with a double incline. " The roller fixed on the slide bar works in the groove; when the " batten is forward the roller is at one end of the groove, and to " obtain the motion the batten is moved backward, when the " roller moves along the groove in one of the inclines, and carries " the shuttles with it to the centre, over which it is passed by a " lever, so that as the batten moves forward it runs along the " groove in the other incline, and so on continuously."

[Printed, 4*d*. No Drawings.]

A.D. 1863, July 16.—N° 1787.

LAMB, JOHN, and TOVEY, SAMUEL.—The patentees say:— " This invention relates to that part of a loom for weaving Brus- " sels and other similar carpets, which is known as the 'creel' or

“ bobbin frame, and also to the weights used in giving tension to
“ the yarn.”

“ According to this invention, the axis of each of the several
“ bobbins rests in notches made in the longitudinal bars of the
“ ‘ creel,’ the front part or side of such notches being considerably
“ inclined from a vertical line in a direction downwards from the
“ front part of the ‘ creel,’ the angle of this part of the notch
“ varying according to the angle at which the ‘ creel ’ is placed.
“ Immediately behind each bobbin, and extending across the
“ entire width of the creel, there is a transverse bar, which we
“ prefer to incline slightly in the same direction as the inclined
“ side of the notch, but not to so great an angle, or in place of a
“ transverse bar small side bars or ribs may be fitted to the sides
“ of the longitudinal bars. The axis of the bobbin rests upon
“ the inclined side of the notch, whilst the ends or flanges of the
“ bobbin are pressed against the transverse bar or the side bars or
“ ribs behind, by the tendency which the bobbin has to descend
“ by its own gravity, thereby producing friction, this friction is
“ however increased so soon as the weight suspended to the yarn
“ descends below the bobbin, as in that case the strain on the
“ yarn tends to draw the bobbin downwards, and force it by a
“ wedge like action against the friction bar or bars behind. When
“ the weight is raised by the drawing off of the yarn, and the
“ yarn leaves the bobbin horizontally, or nearly so, then the friction
“ is released, the bobbin having a tendency to rise up the
“ incline in the notch, and thereby remove its ends from contact
“ with the friction bar or bars. The inclined sides of the notches
“ may be covered by a metal plate, to prevent wear and present a
“ smoother surface for the axis to work upon, and this plate may
“ be made in one piece, with the partition which seperates the end
“ of the axis of one bobbin from its neighbour. The improved
“ weights which we prefer to employ are made of a short length
“ of wrought iron rod bent double, somewhat like the letter **U**.”

[Printed, 10*d*. Drawing.]

A.D. 1863, July 20.—N° 1810.

BRASSEY, Robert Benjamin, and HARGREAVES, James.
—“ Improvements in machinery or apparatus for sizing and
“ drying yarns and fabrics.” These “ improvements are chiefly
“ applicable to the machines for sizing and drying yarn known
“ *as ‘ slashers ’ and* ‘ tape machines,’ and they consist in dis-

" pensing with one of the usual drying cylinders, and in applying " to the other drying cylinder a close fitting cover, which is in " communication with a flue, in which a partial vacuum is " formed by a fan or other suitable means. The yarn is guided " to and from the drying cylinder in such wise that it passes " nearly entirely around it, and the increased evaporation pro" duced by the partial vacuum in the cover causes the yarn to " dry rapidly."

[Printed, 8*d*. Drawing.]

A.D. 1863, July 21.—Nº 1826.

VANNER, James Englebartt.—"This invention has for its " object improvements in the manufacture of umbrellas and " parasols. Heretofore in the manufacture of silks to be used " in the making of umbrellas and parasols it has for the most " part been the practice to produce near to, though at some " distance from, the edge of a fabric a tobine border or an invisible " border, leaving between the edge and such border a quantity " of fabric called the 'leisure,' equal to that required to form a " hem, but in some cases the production of such tobine or " invisible borders have been dispensed with." According to " this invention "the production of a 'leisure' for and the making " of a hem are dispensed with." "And at the edge where the " 'leisure' has been heretofore produced additional warps are " employed in order to obtain such an additional strength to the " edge as to admit of the dispensing with the making of a hem " when covering an umbrella with such a silk fabric, and at the " same time produce a finish at the edge, which will allow of the " hem being dispensed with without deteriorating the character " of the article. And in place of weaving the edge of an um" brella or parasol silk fabric, or that part thereof where the hem " usually comes, of the same tie or pattern as the body of the " fabric, that portion or a part thereof is woven more or less of a " different tie or pattern, and is woven with harness leashes or " cords capable of more or less separate or independent action " from that used for producing the body of the fabric."

[Printed, 4*d*. No Drawings.]

A.D. 1863, July 21.—Nº 1831.

NEWTON, William Edward.—(*A communication from Placide Peltereau.*)—"This invention consists in substituting for the

" textile materials usually employed in the manufacture of mats, " carpets, floor cloths, or coverings for floors, straps, bands, " ropes, and other analogous articles, strips of leather or skins, " especially waste strips." In carrying out the invention the leather is cut up into strips of greater or less length, and of various widths, thickness, or form. To obtain strips of the requisite length the pieces are joined " end to end by means of " some suitable cement, or by pinning or otherwise connecting " them together. The strips or lengths are then arranged in " the form of a warp and are woven into a fabric of the required " width."

[Printed, 4*d*. No Drawings.]

A.D. 1863, July 22.—N° 1836.

BESLAY, Charles.—(*A communication from Etienne Guillaume.*) —" Improvements in making all woven and thready fabrics water- " proof, and in finishing or surfacing fabrics generally." The patentee says :—" My process consists in applying the imperme- " able matters to the threads before weaving them. It will be " easily understood that if the threads composing the fabric are " impermeable they give great impermeable properties to the " whole of the fabric. For applying the impermeable matters to " the threads I employ a dressing machine known and used in " ordinary looms for weaving."

[Printed, 4*d*. No Drawings.]

A.D. 1863, July 25.—N° 1858.

BOYD, John.—" This invention relates to improved mechanism " for forming imitation selvages in weaving a fabric which is to " be cut up into two or more widths. The imitation selvages are " formed by causing two or more longitudinal or warp threads on " each side of the line of cutting to be twisted together in the " process of weaving. Ornamental effects may also be produced " in weaving by introducing any convenient number of longitudi- " nal twisted pairs of threads by means of the mechanism forming " the subject of the present invention, such twisted threads not " being in that case necessarily intended to act as selvages.

" The improved mechanism may also be used to form a twisted " *cord or imitation* selvage at the outer edges of the cloth as

" woven, when it is desirable, for example, to cut away threads at " such edges."

[Printed, 10*d*. Drawing.]

A.D. 1863, July 27.—N° 1867.

PAIN, Joseph.—(*Provisional protection only.*)—The object of this invention "is to dispense with the ordinary hand or machine " hem of umbrellas and parasols, which has hitherto been pro- " duced by turning over a portion of the silk or other material, " and securing the turned over portion by stitching or hem- " ming."

The "invention consists in weaving an extra thickness in the " edge or 'leizure,' in addition to the ordinary extra thickness " termed the 'invisible' border, and in weaving on or in the " invisible border, or on the ordinary silk or other material, when " there is no invisible border, one or more rows of plain or fancy " stitches in imitation of and as a substitute for the ordinary hand " or machine hem or stitch."

[Printed, 4*d*. No Drawings.]

A.D. 1863, July 31.—N° 1892.

GRAHAM, William, and GRAHAM, John.—The patentees say:—" Our invention relates to a new method of weighting the " yarn beams in power looms. Instead of the weights now used, " and which are suspended from the back levers on the loom, we " apply compound springs or a single spring, spiral or otherwise, " to the said levers, by attaching one end of the spring or springs " to the back rail, and the other end resting on the lever, which " lever may be either straight or of any other convenient shape. " The power of the springs is regulated by a thumbscrew placed " upon the under side of the lever. The thumbscrew works on " the end of a bolt which passes through the lever, to which the " swag ropes of the yarn beam are attached."

" Our invention also consists in regulating the length of the " connecting or break rod by means of a moveable portion of " the back break, or by a lock nut and screw attached to the con- " necting rod itself, or other equivalent, for the purpose of " *suddenly checking* the momentum of the loom."

[*Printed, 10d.* Drawing.]

A.D. 1863, August 1.—N° 1905. (* *)

HOEFLER, JOHN.—(*Provisional protection only.*)—"Improve-
" ments in the method of preparing and treating 'codilla fibre'
" and 'tow,' to render them available as a substitute for cotton,
" or to be mixed therewith."

"The 'codilla fibre' or 'tow,' in a raw or rough state, are " first to be submitted to the action of a blowing machine pro- " vided with iron beaters, and with double rows of teeth arranged " in a cylinder revolving within a perforated zinc cylinder, the " dirt and dust being exhausted and delivered as in an ordinary " blowing machine, the fibre being delivered outside the machine. " The fibre is fed to the machine by means of an endless 'creeper,' " upon which it is laid crosswise; by this process the dirt is " removed and the long fibres are broken. It is then to be carded " in an ordinary 'breaker' carding engine, and afterwards to be " steeped and partially bleached, and then passed through a pair " of squeezing rollers and thoroughly dried. The fibre having " been so far prepared is then to be submitted to the action of an " ordinary 'finisher' carding engine, and to be made into laps " twelve or fourteen inches diameter in a lap machine; say two " laps (for instance) are then passed through a machine, well " known and called a 'wet drawing frame,' behind which a travelling " creeper is attached. The slivers are now to be dried and " pessed through a 'hard cotton waste willow,' by which it is " broken up to be again carded; it is then passed through the " blowing machine again and made into laps, and thence to a " second blowing machine, where it is mixed with cotton in " variable quantities, say, for instance, one lap of fibre to two of " cotton, after which it is treated like cotton." An ordinary drawing frame, adapted to the length of "staple" of the fibre, may be employed instead of the "wet drawing frame."

[Printed, 4*d*. No Drawings.]

A.D. 1863, August 1.—N° 1906.

KIRK, JOSIAH.—(*Provisional protection only.*)—This "invention " relates to that portion of the power loom known as the warp " beam, and is designed for the purpose of dispensing with the " loose hanging weights ordinarily employed to give the necessary " tension to the warp. The improvements consist in the novel

" employment and use of a spring or springs in connection with " a chain, rope, strap, or band passing round a pulley on the end " of the warp roller, such chain or band being attached to a screw " passing through the spring and terminating in a handle, and " so arranged that the spring may be pressed or acted upon by " turning the handle, and the chain or band will thus become " tightened, and the amount of friction on the said roller will " become increased, less warp being then delivered, and vice " versa."

[Printed, 4*d*. No Drawings.]

A.D. 1863, August 7.—N° 1951.

NEWTON, ALFRED VINCENT.—(*A communication from Paul Morin.*)—" This invention consists in the application of aluminium " bronze to the construction of shuttles in place of wood, which " is the material usually employed for that purpose."

[Printed, 4*d*. No Drawings.]

A.D. 1863, August 11.—N° 1977.

BARKER, DAVID WRIGHT. — " Improvements in means or " apparatus for actuating rotary shuttle boxes." The patentee says :—" The object of the improvements is economy and sim" plicity in working. For this purpose upon the tappet lever I " apply a projection with a nib or bowl in position to act at times " upon either of two surfaces of different elevations formed on " one arm of an inverted L lever, which is also formed to act on " the catch, which by pin joint is connected to the lever for " driving the series of boxes, whilst the other end of this catch " is capable of taking on to the tappet lever. The other end of " the inverted L lever carries a stud by which the selection is " made by the pattern surface employed, and it also carries the " click or driver by which the barrel of the pattern surface is " caused to revolve."

[Printed, 8*d*. Drawing.]

A.D. 1863, August 12.—N° 1994.

HUDSON, WILLIAM, CATLOW, CHRISTOPHER, and DODGEON, JOHN.—The patentees say :—" Our invention " refers to the taking-up motion of looms, and to those arrange" ments in which what is called the ' emery roller' is used, and

" consists, firstly, in causing a rod or roller to be drawn by the " tension of the cloth on to the surface of the said emery roller, " in such manner as to have a tendency to be dragged over its " periphery.

"Another part of our invention consists in disconnecting the " usual weighted lever of the cloth beam from the framework, and " in hanging it upon a link or links which are connected at their " upper ends to a rod or roller pressing upon the emery roller, " which rod or roller may be situated as above described in reference " to the first part of our invention."

[Printed, 8*d*. Drawing.]

A.D. 1863, August 15.—N° 2032.

LIGHTBOWN, Roger.—" Improvements in looms for weaving." This "invention relates to a method of regulating the " tension of the yarn, and consists in the employment of a moveable " rest arranged to act in unison with the friction rope of the " yarn beam, whereby those two parts are mutually dependent."

Another part of the invention consists in a method of attaching the end or ends of the friction rope. "The shaft, rod, or other " part to which it is attached is provided with two holes," " through the first of which the rope is passed, and then back " again through the other hole, and thus a secure attachment is " effected by a binding action."

[Printed, 6*d*. Drawing.]

A.D. 1863, August 18.—N° 2044.

BROADLEY, James.—" Improvements in means or apparatus " employed in weaving." The patentee says,—" The improvements " relate first to the picking apparatus. The picker, in place " of being formed to slide on a rod or spindle, called the picker " spindle, has projections on each side of it adapted to slide " between bars or guides carried by the parts of the batten or " shuttle box, and serving to guide the picker in its motion in " place of the picker spindle. At the ends of these guides, and " next the fabric, they are provided with a leather or other suitable " pad to check the momentum of the picker after it has thrown " the shuttle. The picker strap embraces the open part of " the picker." " Also, I form each picker in two parts, one " part being formed of metal or other suitable material, and

" capable of sliding on a bar or so as to be otherwise guided in
" the batten below the shuttle race, and it thence rises up through
" the other part of the picker which strikes the shuttle in order
" to receive the picker strap."

" Secondly, the improvements relate to a method of giving
" motion to revolving shuttle boxes. Upon a spindle which by
" suitable gear is capable of giving rotary motion to the series of
" boxes in either direction is affixed a wheel with ratchets on its
" opposite faces. The teeth of these ratchets are capable of being
" acted upon by catches selected by jacquard or pattern surface
" to cause the series of boxes to move in either direction when
" required.

" Thirdly, the improvements relate to the case of two or more
" breadths of fabric, being woven side by side together in a loom
" at the same time, and separated by cutting up across the weft
" threads, and they have reference to means by which the adjoin-
" ing edges or selvages of such breadths of fabric are formed.

" According to one arrangement, in place of the threads to form
" each selvage continuously twisting upon each other, and upon
" the weft threads in one direction, they are caused to twist alter-
" nately in opposite directions. For this purpose each of a pair
" of selvage threads passes through an eye carried by a disc, one
" of such eyes being near one edge of the disc, and the other
" near the opposite edge, and these discs have pinions formed on
" or affixed to them, the teeth of which are taken into by the
" teeth of a rack on a rod, the lower end of which is by pin joint
" connected to one end of a lever operated by a cam. Also, to
" save space between adjoining breadths of fabric, I form discs
" with eyes to conduct selvage threads of thin sheet metal placed
" near to each other upon a hollow spindle or boss, upon the end
" of which is also affixed a pinion, to which the requisite motion is
" given in any suitable manner, or the motion may be given by a
" strap or band. Also, this part of the improvements relates to
" producing a faster selvage between adjoining breadths. For
" this purpose, in addition to the ordinary selvage threads, I
" operate upon an adjoining warp thread by passing such adjoin-
" ing warp thread through an eye in a blade or finger, by which
" such adjoining warp thread may be operated to cross on alter-
" nate sides of the selvage threads.

" *Also, the* improvements relate to obtaining the selvage threads
" *by one thread* being fed from a bobbin aided by a finger or

" guide whilst the other of such selvage threads is supplied from " the ordinary warp beam, and thence passes through the centre " of the bobbin referred to.

" Fourthly, the improvements relate to the case of what are " called loose reeds being employed, and have for their object to " render them particularly applicable when weaving various " strengths of goods. For this purpose the rod or plate which " acts to hold the lower edge of the reed has studs, which pass " through the batten, and these studs have nicks or catches " formed on them to receive a lever or other suitable catch, " by which they may hold the reed firmly when required, and " then allow of its being released when, by a shuttle stopping " in the shed or otherwise, it may be necessary for the reed to be " loose."

[Printed, 3*s*. 6*d*. Drawings.]

A.D. 1863, August 19.—N° 2061.

BOUSFIELD, George Tomlinson.—(*A communication from Charles Bradley*.)—" Improvements in apparatus for feeding weft " in hair cloth looms." "The invention consists, first, in confining the lengths of hair or other weft, which by a previous operation have been arranged parellel to each other, in a bunch or " compressed body at one end, and in reciprocating or otherwise " changing the position of the said compressed weft with respect " to the device employed to select single lengths therefrom, so " that a different portion or surface of the compressed weft is " presented to said device at each stroke or motion made by it, " or at each successive beat of the lay, for the purpose of insuring " greater certainty in selecting and separating a length of the " weft from the compressed mass or bunch.

" Secondly, in the use of a notched bevil-pointed lance, or the " equivalent thereof, which being plunged into the compressed " hair or weft at right angles to the parallel lengths, selects therefrom a single length, and in connection with a yielding pad or " arm carries the length thus selected to the proper position, and " holds the weft in the notch of the lance until it is seized and " detached therefrom by the hook, nippers, or other device used " to insert the weft in the warp or web, the notch in the said " lance being of such capacity that it will contain but a single " hair or length of weft, and the said lance being bevilled from " the notch *to its point*, so that in penetrating the interstices of

" the compressed hair or weft, the surrounding lengths are made " to depart from their parallel position, and some one of the " lengths of hair is forced by the resistance thus created to enter " the notch in the lance.

" Thirdly, in causing the said lance or its equivalent to repeat " its efforts to select a hair or length of the weft several times " during a single beat of a lay, by making said repeating action " dependent upon the failure in the first and succeeding ineffec- " tual movements to secure a hair or length by any effective auto- " matic mechanism, which in the absence of the hair in the notch " of the lance permits its movements to continue, and stops the " same when a hair or length of weft has been secured."

[Printed, 1*s.* Drawing.]

A.D. 1863, August 28.—N° 2123.

BELL, Robert.—"This invention relates to improved measuring " apparatus specially designed for application to looms in order " to measure the fabric immediately upon its being woven.

" The improved apparatus comprises a small roller or wheel " fitted with points or other frictional appliance to receive motion " from the fabric, in contact with which it is applied; or the " fabric may be passed between two rollers or wheels, from one of " which the measurement is taken. The measuring roller is com- " bined with a train of wheels and with a dial and pointer, or " equivalent indicating or registering details."

[Printed, 8*d.* Drawing.]

A.D. 1863, August 29.—N° 2138.

SPEIRS, David, BOYD, Alexander, and KIRKWOOD, James. — "This invention comprises various improvements in " looms for weaving, the improvements being designed more " particularly to promote the weaving by power of figured fabrics " of and similar to the 'Paisley shawl' class." "To lessen the " friction upon the warps" "the lathe is by preference made to " work in guides in the upper part of the side frames of the " loom." "With a similar object the shuttle is fitted with four " or more antifriction wheels." "The wheels of the shuttles are " set with slight inclinations which cause the shuttle to bear " against the reed in passing across; rotating or cylinder shuttle " boxes are used, being carried by means of spindles fixed in the

“ outer ends of the central barrels, and turning in bearings in
“ the lathe wings, whilst the inner ends of the cylinders are
“ encircled by grooved rings which rest upon supporting guides,
“ being held down by upper guides fixed to bars which stay the
“ lathe wings above the shuttle box cylinders. The picking is
“ effected by levers projecting up from below, and takes place
“ from the shuttle box or cell which happens to be in the middle
“ of the front side of the cylinder. Each shuttle cell is fitted
“ with a spring or swell lever and spring, which is pressed in-
“ wards when the shuttle gets properly home, and the end of
“ each lever or spring is jointed to a pin or rod which passes
“ across the centre of the barrel, and is fitted at the other side
“ with a head to act on the ordinary stop-motion lever.” “To
“ effect the shifting of the shuttle box cylinder it is fitted with
“ large ratchet teeth, and when the lathe moves forward a tooth
“ comes in contact with a spring pawl and causes the cylinder to
“ turn, the cylinder being kept steady between each shift by a
“ hammer and spring bearing on faces made for it on the barrel,
“ a conical or rounded rim is fitted to the inner end of the
“ shuttle box cylinder to prevent the various wefts from catching
“ on the edges of the shuttle cells. The heddles are actuated by
“ a ‘dobbie’ or seperate jacquard apparatus of small size, but
“ strongly made; this dobbie is actuated directly from the crank
“ shaft, the barrel being moved out by a bent lever in connection
“ with the lift plate, and returning by springs. The levers for
“ working the heddles are moved by adjustable slotted links
“ attached to the vertical wires of the dobbie, and the levers move
“ in vertical slots in a fixed guide frame, adjacent to which is a
“ catch frame formed with a groove and catch for each lever.
“ When a lever is actuated it enters under a catch in the frame,
“ and remains stationary during the run of shots, but when a
“ second lever is actuated for the next shed the second lever in
“ entering under its catch moves the catch frame aside so as to
“ relieve the first lever. An additional lever besides the heddle
“ levers is provided to shift the catch frame and release any
“ heddle lever when required. The principal jacquard apparatus
“ for actuating the figuring harness is worked by a lever acted
“ upon by an eccentric or cam on the low shaft of the loom, and
“ when the jacquard movements have to be suspended this lever
“ is held down by a catch, entered and withdrawn at the proper
“ periods by the dobbie. To effect the backward rotation of the

" card barrel for 'twice drawing' the barrel is fitted with a collar " which, when going over the 'bridle' or set of cards the first " time, winds up a weight, and this weight rotates the barrel back " at the proper time, a cord acted upon by the dobbie then re- " leasing the barrel, whilst a second cord from the dobbie moves " the collar out of gear when the bridle is being gone over the " second time."

[Printed, 1*s*. Drawing.]

A.D. 1863, September 1.—N° 2157.

SHORROCK, Christopher, and SHORROCK, William.—(*Provisional protection only*.)—The inventors say:—" Our inven- " tion is designed for the purpose of preventing 'cracks' or thin " places and 'tapes' or thick places in weaving calico and other " similar fabrics in the ordinary loom, and consists in the use of " a sliding pawl or catch acting upon the ratchet wheel, by which " the 'cloth beam' is turned through the 'taking-up motion."

" A second part of our improvements consists in the employ- " ment and use of a central or intermediate stop 'weft fork,' " similar in description to and placed between those now used at " each side of the loom."

[Printed, 4*d*. No Drawings.]

A.D. 1863, September 1.—N° 2160.

JOYOT, Pierre, jeune. — " These improvements relate to a " double-faced fabric or tissue, consisting of a combination of " plain or figured and of velvet parts, the velvet presenting the " peculiarity of having a flushing or pile on both faces or sides of " the tissue, this pile or flushing being either cut or uncut, viz., " forming either an ordinary flushing or a plush or shag.

" The tissue is more particularly intended to serve for ribbon. " For manufacturing the same any loom suitable for weaving " either plain or figured velvet or velvet ribbon of whatever usual " width judged proper may be employed, the invention consisting " in replacing the ordinary wires made use of for forming the pile " by forked ones, one leg, branch, or prong of which forks serving " for the upper, and the other for the lower or back pile. By " preference, however, a loom of the kind called bar looms for " *weaving velvet* or other ribbon is made use of, in which the " *ordinary pile wires* are replaced by the above-mentioned forked

“ ones, and are moved entirely by the loom itself, without re-
“ quiring the aid of the weaver, the mechanical parts being
“ arranged in such manner as to cause the said forks to enter the
“ shed, and afterwards leave the fabric at the required moment,
“ and thus produce a pile or flushing as well on the top as at the
“ back of the tissue, whilst the said pile or velvet may be either
“ plain or figured. The pile or flushing may be left uncut, or
“ the same may be cut up, either having the free or further end
“ of the fork prongs provided at the top with a cutting part, or
“ the pile of the tissue may be cut after the same is woven by
“ means of shears or any suitable shaving or shearing apparatus,
“ whilst the remainder or ground of the tissue may be woven
“ plain, figured, tweeled, striped, or according to any other suit-
“ able pattern or mounting.”

[Printed, 8*d*. Drawing.]

A.D. 1863, September 8.—N° 2207.

BURCH, Joseph.—“ Improvements in printing on certain and
“ other terry and velvet pile carpets, felted cloths, and other
“ fabrics and materials, and in the processes and apparatus con-
“ nected therewith.” The ninth part of this invention consists
in printing “ on velvet pile and terry-faced fabrics, when upon
“ the face of such fabrics the pile or terry is raised by wires across
“ the piece, such wires being made of brass, tin, or other metals,
“ the oxides from which do not injure or sadden coloring matters,
“ instead of the steel or iron wires now in general use, and par-
“ ticularly in printing on cloth woven with either single or double
“ binder warp, and with three picks or shorts of weft to every
“ terry or wire withdrawn, the three sheds through which the
“ shuttle is thrown being formed in the following manner,
“ namely, the first shed is made by raising the worsted and
“ binder warps, and depressing the stuffer warp; the second shed
“ is made by raising the binder warp and depressing the worsted
“ and stuffer warps; the third shed is a double shed made by
“ raising the worsted warp to the top, and depressing the binder
“ warp to the bottom; these two form a wide shed, which is
“ divided by the stuffer warp. The wire is then inserted in the
“ upper division between the worsted and stuffer warps, while
“ the shuttle is thrown through the lower division between the
“ stuffer and binder warps; when a double binder warp is used,

" each is raised and depressed, alternately binding the weft above " and below as the succeeding terrys are formed."

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1863, September 10.—N° 2233. (* *)

MUIR, MATTHEW ANDREW, and McILWHAM, JAMES.— " Improvements in machinery or apparatus for winding yarns or " thread."

This invention relates to the winding of yarn or thread either in the "cop" or "pirn" form, and is "partially based upon or " refers more or less to" the invention described in the Specification of W. Robertson and J. G. Orchar, No. 2757, A.D. 1858.

The main objects of the present invention are, simplification of the details of such machinery, and rendering the "drag" upon the yarn or thread perfectly uniform.

" According to one practical and tried modification of this " improved machinery, the main fixed framing is of a long " rectangular form, and is fitted with bearings to carry a horizontal longitudinal shaft disposed so as to coincide or nearly " so with the longitudinal centre of the framing. It is from this " shaft that the whole of the necessary winding movements, with " the exception of the actual driving of the spindles, are derived. " This shaft carries a number of eccentrics, differential cams, or " 'hearts,' which operate through the medium of suitable con- " nections upon a tranverse bar, or set of bars, to give motion " to a bell-crank lever working in concert with each winding " spindle. This bell-crank lever has on its end the necessary " guiding eye or finger, through which the yarn to be wound " passes from the holding reel to the spindle. The building cone " is in this case stationary, and the 'heart' or cam action, herein- " before described, lays the yarn upon the spindle in the required " 'pirn' form, whilst the spindle descends in accordance with " the building movement; a counterweight over a pulley is em- " ployed to hold the pirn up against the cone, so as to build the " yarn on the pirn to the required hardness; or instead of this " counterweight action, a weighted lever can be adopted for the " purpose of producing a similar result, the acting weight upon " the lever being adjustable to suit the amount of counterpoise " actually required; or the spindle may be arranged to be sta- " tionary as regards its vertical action whilst the building cone

" rises and falls," in the same way as described in Robertson and Orchar's Specification already referred to. "According to another " modification the guide finger for the winding-on of the yarn is " arranged in another way. In this case a horizontal shaft is " carried along each line of spindles in stationary bracket bear- " ings. It is this shaft which works the entire series of guide " fingers, the connection between the shaft and the actual guide " finger being through the medium of a stop catch, so that whilst " the guide connections is perfect during the actual winding " action, the attendant can disengage the necessary parts of dof- " fing without difficulty or without interfering with the rest of " the details. To allow for the varying state of drag upon the " yarn or thread as it would be taken from the reel with the uni- " form spindle movement," a vibrating guide lever worked from the same shaft is employed, "and this lever is set so that its " effective varying leverage compensates accurately for the dif- " ferential winding on due to the conical form of the pirn or cop. " A crank, camb, or heart action from the main shaft exactly " meets the requirements of the case, because each increment of " movement of the crank represents an equally varying winding- " up power of the pirn or spindle. In this way the drag upon " the yarn is kept constantly uniform. And in order to make the " winding-on action perfect with the least possible traverse given " to the compensating lever, the thread finger traverse and the " compensating lever traverse are set so that the build action of " the cone proceeds upon an assumed central or neutral line, " the thread finger being always at the centre of its traverse or " assumed central line while the compensating lever is at either " extreme of its traverse. In this way the compensating lever " traverse is diminished by one half, and by carrying the line of " yarn round an intermediate guide or stud pin, the necessary " traverse of the compensating lever is again reduced. And " further, the traverse action of the lever can be again reduced by " multiplying the number of studs both upon the lever itself and " upon the stationary framing; the yarn or thread being carried " round two or more such studs or pins somewhat after the " manner of a set of pulley blocks."

Various modifications of the details of the invention are described by reference to a sheet of Drawings annexed to the Specification.

[Printed, 1s. Drawing.]

A.D. 1863, September 11.—N° 2243.

LEE, James Denby, and CRABTREE, James.—(*Provisional protection only.*)—"This invention relates to means of working "or operating change shuttle boxes in looms for weaving, and "the improvements consist in working them direct from the "crank shaft by gear wheels and shafts."

[Printed, 4*d*. No Drawings.]

A.D. 1863, September 16.—N° 2273.

THOMSON, Robert.—(*Provisional protection only.*)—"An "improved mixed fabric, and in the application thereof to covering umbrellas and parasols." "The invention consists, first, "in an improved fabric to be made by employing a warp of silk "and weft of polished or 'lustre finished' thread (instead of in "its unfinished state); these are to be woven together in the "same and well-known manner as fabrics composed entirely of "silk, either twisted or plain, and not to be woven or combined "so as to form a cotton back and silk face, as hitherto, in the "manufacture of 'serges,' for instance.

"A second part of the invention consists particularly in the "application and adaptation of the fabric so produced to the "covering of umbrellas, parasols, or 'sun shades.'"

[Printed, 4*d*. No Drawings.]

A.D. 1863, September 16.—N° 2274.

SCOTT, Edward, and STARKEY, John.—(*Provisional protection only.*)—The inventors say:—"Our invention relates, "first, to that portion of the loom called the 'taking-up motion,' "and consists in an arrangement of self-acting mechanism for decreasing the rotation of the cloth roller as the fabric accumulates "thereupon; such mechanism consists of the ordinary lever "vibrating upon a fulcrum near the top, and having the usual "two or more pawls above such fulcrum, which act upon the "ordinary ratchet wheel driving the cloth roller; in the lower "end of this lever a vertical slot or slide is formed, in which is a "stud or sliding piece connected with and receiving motion from "the slay, the said stud being attached by a band passing "round a bowl at the lower end of the slay to a rod acting on "the periphery of the cloth roller."

"A second part of the invention relates to an improved arrangement of apparatus for driving the shuttle, termed the 'picking motion,' which consists in the use of a disc or wheel upon and revolving with the crank shaft, and carrying on its surface near its circumference a bowl or stud which strikes (every alternate revolution) a projecting finger secured to a diagonal shaft, which is connected to the 'picking stick,' and thus effects the sudden movement of the 'picking stick' and the propulsion of the shuttle, but in order to obtain the alternate action of the 'picker stick' the said fingers are caused alternately to swivel or turn out of course of the stud or bowl by means of a bowl on the wheel driven by the crank shaft, which depresses a lever on the swivelling boss of the finger and causes it to turn partly round and to escape the blow of the stud or bowl on the disc.

"The 'picker and stick' for propelling the shuttle constitutes a third part of the invention, and consists in facing or covering the 'picking stick' with buffalo hide, india-rubber, or other suitable material, and thereby dispensing with the ordinary picker."

"The fourth part of the invention relates to the motion for actuating the healds termed the 'heald or shedding motion,' and consists in the employment and use of an endless chain, cord, or band, partly encircling the peripheries of the cams or eccentrics to transmit the motion to the healds."

"Fifthly, our invention relates to that part of the loom known as the 'weft motion' for stopping the loom when the weft breaks, and consists in an arrangement of mechanism, which may thus be described:—A sliding catch or finger upon the slay of the loom is attached to the 'picker strap' and moves or slides with each movement of the said strap, which movement causes a bent finger passing beneath the weft to lift the weft to the centre of the ordinary 'weft fork,' thereby causing such fork to act in the usual manner; but in the event of the absence of the weft a projecting finger in connection with the fork is not lifted, and the sliding catch comes into contact therewith and holds it down until it comes in contact with the ordinary spring handle, and thus effects the stoppage of the loom."

"Lastly, our invention relates to the 'warp beam,' and is designed to regulate* the pressure thereupon, and consequently

" the tension of the warp, the improvement consists in the use of " screws having toothed or star wheel heads, into which a stud " or tooth on the 'warp beam' gears at each revolution so as to " turn the screws and gradually lessen the pressure of the india-" rubber or elastic bearings in which the warp beam is mounted " as the warp becomes unwound."

[Printed, 4*d*. No Drawings.]

A.D. 1863, September 21.—Nº 2328.

BOUSFIELD, George Tomlinson.—(*A communication from Charles Bradley.*)—" Improvements in power looms for weaving " hair cloth and fabrics in which the weft is inserted in separate " lengths of material." The patentee says,—" The invention " comprises the following improvements :—

" First, the construction and method of operating the nipper or " device used to insert the lengths of weft in the warp in order " to ensure the certain seizure of the hair without severing, " crushing, or otherwise injuring the same, and the means em-" ployed to reciprocate the said nipper or other device performing " its functions between the open sheds of the warp to avoid " undue momentum arising from its rapid movements to and fro. " For the accomplishment of the former desirable result, I form " one jaw of the nipper with two projecting pegs or their equivalent " which enter the opposite jaw thereof in closing, and between " which the hair is seized and enclosed beyond the possibility of " escape, and by arresting the complete closing of the nipper by " means of a set screw, against the point of which the part by " which the moveable jaw is actuated bears, until with the re-" treating movement of the nipper it slides off said point and " permits the spring force of the moveable jaw to simply press " upon the hair with sufficient firmness to hold it securely between " the said jaw while it is being drawn into the open shed of the " warp, and for the accomplishment of the latter mentioned result " I make use of a tough yet light wooden nipper staff, which is " made to slide to and fro in suitable guides formed in the lathe " beam by means of a strap or band passing over a system of " fixed and moveable pulleys, the latter with the two ends of the " said strap or band being attached to the loose ends of the " treadle levers, which are operated by revolving cams on the cam " shaft in the usual way.

"The second improvement consists in the method of operating " and controlling the several sets of heddles, in order to open the " succeeding sheds with an instantaneous movement, for the " purpose of giving the nipper and other parts dependent upon " such action ample time and space to perform their respective " functions during the single beat of the lathe, and in so controlling the action of the said heddles that they shall remain at " rest unchanged and wholly disconnected from the moving parts " of the loom with the last shed still open until, by reason and as " a consequence of the seizure of a hair or length of the weft by " the nipper, and of the drawing of the same into the open shed, " a connection is effected between the device which operates the " several sets of heddles and the source of motion by which the " device is actuated to open the succeeding shed of the warp preparatory to the insertion of the succeeding hair or length of " weft."

"The third improvement consists in the method of operating " the heddles which open the succeeding sheds of the selvage " threads to provide against the formation of an undue length of " loop next to the selvage, which would otherwise occur in repeating the number of changes, and give the cloth an uneven " and loose appearance at the selvage. This object is accomplished " by means of a peculiar arrangement of the cams, which " operate the salvage heddles, whereby with each repetition of the " changes of the heddles, the same selvage shed is held open " during the insertion of two hairs or lengths of weft, which are " thus bound within the same salvage thread for the purpose of " shortening the loop formed by the change between the selvage " and the main portion of the fabric.

"The fourth improvement consists in the combination and " arrangement of the 'let-off' mechanism with the 'take-up' " mechanism, whereby both are operated and controlled from the " same source of motion at each beat of the lathe to produce an " equal movement in each mechanism, and an uniform progressive " movement of the warp in its passage from the yarn beam to " the cloth beam, in order to avoid the excessive tension of the " warp, and for other purposes. This is accomplished by drawing " the warp from the yarn beam by means of a pair of pressure " rollers constituting the 'let-off' device, between and around " which the warp passes, thence over the breast beam, and is " delivered to another pair of pressure rollers, constituting the

" 'take-up' device between and around which the warp passes, " and thence to the cloth beam. The lengths of hair are moistened before being inserted in the warp, and the said hair in " drying is liable to shrink and become curved in the cloth " instead of lying straight and at right angles with the threads of " the warp.

"The fifth improvement consists in giving a shape to the reed " calculated to counteract the curvature of the woven hair produced by its shrinking in drying.

"The sixth improvement consists in the employment of a stop " or suitable device for arresting the further operation of the " automatic mechanism used to select the separate lengths of hair " or other weft, and present the same to the open nipper to " prevent the nipper as it advances to seize the hair from " coming in contact with the said mechanism and injuring the " same."

"The seventh improvement consists in the employment of a " suitable clipping device operated by the beating movement of " the lathe to clip the straggling ends of the bunch of hair or " other weft, to prevent said ends from interfering with the " operation of the contiguous parts of the machine."

[Printed, 3s. 6d. Drawings.]

A.D. 1863, September 23.—N° 2345.

GIBB, Walter, and HOLLAND, James.—" Improvements in " looms for weaving." "This invention consists in an improved " treading motion for giving movement to the healds for forming " the shed according to the desired pattern of the fabric. At the " centre or end of the loom there are two lifters or knives working in guides or frames, and made to move up and down alternately by levers or rockers connected by a rod to a crank or " lever on the crank shaft of the loom. To the knife frame are " fixed grids which guide a number of bars or slides, each of " which is connected at the bottom by a cord to the top of its " corresponding heald, and at the top by another cord and jack " to the bottom of the same heald. At the upper part of the " bar or slide there are two projections or hooks which can be " caught by the bottoms of the lifters. The cords connected to " the tops of the bars or slides are guided over pulleys so placed " that they pull all the bars on one side so that they can be

" acted upon by the lifters on that side, and in order that the " bars may be acted upon by the other lifters they are moved by " fingers or levers acted upon by a pattern chain. Two of " the projections on the bar or slide enable the healds to form the " shed, and the other projections are for the purpose of bringing " the healds to a level."

[Printed, 10*d.* Drawing.]

A.D. 1863, September 24.—N° 2358.

OXLEY, WILLIAM.—(*Provisional protection only.*)—This invention " consists in forming pickers by enclosing buffalo hide or other " suitable substance between metal plates, rivetted or otherwise " drawn together, and which are provided with apertures, so as " to present on each side a bare surface of the hide or other such " substance to act upon the shuttle."

[Printed, 4*d.* No Drawings.]

A.D. 1863, September 26.—N° 2369.

CLARKE, RICHARD. — (*Provisional protection only.*) — " The " invention relates to the covering of bands or hoops of 'crinoline' " steel, so as to form a skirt wherein the said hoops are imperceptible, such being now well known. The improvement consists in the application and use of a new fabric or material for " the purpose of covering the said hoops, such fabric being " composed of cotton warp and 'cotton waste' weft, and woven " in the ordinary calico loom, and known as 'waste domestics,' " after which it is to be submitted to the action of the 'cards' to " raise a 'nap' or fibrous surface thereupon."

[Printed, 4*d.* No Drawings.]

A.D. 1863, September 26.—N° 2370. (* *)

CLARK, WILLIAM.—(*A communication from Théodore Courant.*) —" An improved fabric for the production of permanent electricity " applicable for wearing apparel."

" This invention relates to the manufacture of an improved " fabric suitable for the production of permanent electricity. " This fabric has a warp consisting of carded wool forming the " surface, which is suitably arranged in the reed for completely " enveloping the metal wires in couples forming the weft of the " fabric. The warp thus formed has a thickness of wool on both

" sides of the weft for the purpose of imparting softness to the " fabric and rendering it similar to flannel, without, however, pre- " venting the electricity produced by the couples from becoming " disengaged. The metal weft is composed of a core of cotton or " other fibre containing any suitable number of threads according " to the required diameter of the wires. The cotton core is first " chemically prepared in order to increase its conductibility, and " is then enveloped in a laminated covering or ribbon of zinc or " copper, a weft thread of zinc being placed beside a copper weft " in each shed of the warp in order to form a couple or voltaic " element."

The fibres of the above-mentioned fabrics may be " of animal " or vegetable origin either woven or felted, under which latter " head I include paper." The paper is coated " with an adhesive " composition," on which the metals are fixed in the form of leaves, sheets, or powder, " the metals being of different kinds, " copper and zinc, for example, for producing electricity, after " which I make up the paper into garments or coverings to be " applied to the skin and caused to adhere thereto if desired."

[Printed, 4*d*. No Drawings.]

A.D. 1863, September 29.—N° 2387.

MENDEL, Sam.—" This invention consists of producing, in the " process of weaving woven fabrics, strips of cloths without selv- " edges, for the purpose of covering telegraph wires, or insulating " purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1863, October 3.—N° 2423.

SCHOFIELD, Joseph, KIRK, John, and SPIVEY, William. —" Improvements in looms for weaving." " This invention " relates, firstly, to the picking motion, and the improvement " consists in the application of a clutch or catch box to the shaft " which actuates the picking levers, or which places them in or " out of contact with the picking tappets, with suitable rods and " levers for operating the same, and a tumbler or other similar " means for holding the said clutch in either position as required, " whereby the attendant can instantly stop the action of the pick- " *ing motion* without stopping the other moving parts of the " *loom*.

"Secondly, the invention relates to the jacquard engine or indi-
" cating apparatus, and the improvement consists in having the
" cylinder constructed in two parts forming two separate cylin-
" ders, one running loose on the shaft of the other, or so arranged
" that each may be 'lagged back' or turned in the reverse direc-
" tion independently of the other when required."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1863, October 6.—N° 2443.

HOLGATE, William, HOLGATE, Henry, and HOLGATE, Thomas.—(*Provisional protection only.*)—" Improvements in the
" manufacture of pickers used in weaving." The inventors say:—
" Instead of making the pickers entirely of buffalo hide, as here-
" tofore, we make the top part, or that which slides on the rod, of
" wood, metal, or other suitable cheap material, and attach the
" bottom part or buffer, which we make of buffalo hide, to the
" top part by a bolt and nut or other suitable means, the bottom
" part of the bolt forming the foot of the picker, and the top
" part having a thread to take the nut or set screw to secure the
" buffer to the top part of the picker."

[Printed, 4*d*. No Drawings.]

A.D. 1863, October 14.—N° 2519.

MILTON, James.— " Improvements in looms for weaving."
" The improvements relating to the shedding movements are, by
" preference, applied to the class of power loom in which the
" leaves of heddles are raised by levers or quadrants on overhead
" transverse horizontal bars, which bars are themselves actuated
" by levers fixed upon them at one side of the loom. In the im-
" proved arrangements there are attached to the last-mentioned
" levers vertical rods, having hooked pieces jointed to their lower
" ends, and these hooked pieces are entered through openings in
" the broad end of a treadle or lever, which are made to vibrate
" by means ef a cam on the low shaft of the loom. There is
" only the one shedding treadle or lever, and it is depressed once
" for every pick. The hooks of the vertical heddle rods are seve-
" rally caught by the treadle or not according to the position of
" each, and each hook has a spring applied to it to press it into
" the position for being caught when not otherwise acted upon.
" Each hook that at any particular pick is not to be acted upon

" is drawn back by the vertical leg of a bell crank lever, this leg " having at the bottom a slot or fork and antifriction pulley, " within which the hook piece works. The horizontal legs of the " several bell-crank levers are fitted with studs, which are acted " upon by a small jacquard barrel with cards perforated according " to the succession of sheds necessary for the desired pattern or " kind of weaving."

"The improved shuttle box details comprised in the present " invention may have their actions regulated by the jacquard " barrel and cords herein-before described, as regulating the " shedding movements, two levers being acted upon by the " jacquard barrel for this purpose, one effecting the raising, and " the other the lowering of the boxes. The arrangements are " applicable to any convenient number of boxes, shifting a box at " a time, and by slight modifications may be made to shift more " than one box at a time. The levers acted upon by the jacquard " barrel transmit their movements in any convenient way to stops " sliding in guides fixed to the front of the loom framing. In " a mounting below the shuttle box, and carried by the lathe " sword, there are two sliding bolts arranged to come in contact " with the stops mentioned when the lathe beats up; when a " change of shuttle has to be effected, one of the stops is moved " by the jacquard action into a position to act on the corresponding sliding bolt. The shuttle box is supported by a pair of " stepped legs at the back resting on jointed stilts or catches, " and when one of the sliding bolts is acted on by the stop in " front, it causes the stilts or catches to move backwards, whereupon the box drops until a higher step rests on the stilts or " catches; when the other sliding bolt is acted upon, it turns a " kind of bell-crank lever in such a way that a pawl jointed to " the lever takes into one of a series of notches on the front of a " leg fixed to the shuttle box between the stepped legs, and " thereby raises the shuttle box until the stilts or catches at the " back enter by the action of a spring under a lower step of the " stepped legs.

"When a rotating shuttle box is used it is preferred to shift it " by means of vertical 'pull over' catches jointed near the lathe " axis to the ends of levers, the other ends of which levers have " links jointed to them with hooks to be acted upon by a lever " worked by a revolving cam. The hooked parts are put into or " out of gear by the direct action of the jacquard barrel on levers

" corresponding to those herein-before described, as being pro-" vided for regulating the shuttle box movements."

[Printed, 8*d*. Drawing.]

A.D. 1863, October 17.—N° 2538.

BERRISFORD, SAMUEL, and AINSWORTH, WILLIAM.— " Certain improvements in looms for weaving." This invention " consists, in the first place, in an improved method of raising " shuttle boxes when not more than two boxes are required." " On the swing rail, which is prolonged to a suitable distance, or " upon a stud coinciding with it, is mounted an eccentric, which " eccentric is caused to revolve half way round by an intermittent " motion derived from a star wheel from the tappet shaft; this " eccentric is connected by a rod to the drop boxes, the half " revolutions of the eccentric causing the boxes to rise or fall " with great steadiness." " Perforated cards or a chain of " different elevations cause a cessation of movement for any " number of picks, by pushing away or withdrawing the pin that " gives motion to the star wheel.

" Secondly, in an improved taking-up or letting-off motion. " On each side of a spur wheel are slotted levers mounted on the " same bearing, which levers carry small pinions connected with " light ratchet wheels of a suitable diameter; to these levers is " given an oscillating motion, which motion is obtained from any " suitable part of the loom. As the cloth accumulates on the " roller, it elevates or depresses a rod, and this causes a propor-" tionally lesser motion of the oscillating levers; one of these " levers may, if required, remain stationary. When applied to " letting-off the yarn, its action will be the reverse of the " above."

" Thirdly, in a new and improved method of forming a shed " with any number of shafts. The healds are mounted in the " usual manner by top and bottom levers; on one side of the " loom is fixed a frame which supports the grid or grids, and " which form guides for flat bars; these bars are connected to " the top and bottom levers by cords. This frame also supports " a barrel which revolves, and thus takes the pattern chain along " with it; it receives its motion from a star wheel and suitable " gearing from crank or tappet shaft. To the framing of

" the loom are fixed two studs, upon which work two bell-crank " levers fitting into each other by means of teeth; the end of " one of these levers receives a vertical motion from the end of " the crank shaft by means of a stud or eccentric, and moves up " and down at every revolution. To each of the aforesaid levers " is bolted a knife, which takes hold of hooks at each end of the " before-named flat bars as they are pushed forward by pegs " on the pattern chain; the flat bars return to their original " position by the elasticity of the cords alone, thus avoiding the " necessity of springs.

" Fourthly, in an improved arrangement of machinery for " obtaining any number of picks from either side of the loom as " the pattern to be woven may require. A rod lies across the " loom parallel with the tappet shaft, and is connected to sliding " picking tappets, which the said rod pushes in and out of action " according to the elevations and depressions of the pattern chain. " The tappet is so constructed that one part never leaves the surface " of the picking bowl, the other part being at liberty to slide " freely on the tappet shaft."

[Printed, 10*d*. Drawing.]

A.D. 1863, October 17.—N° 2540.

HAMPSON, William, the younger.—These improvements " are " designed for the purpose of easing or checking the blow or " concussion of the shuttle against the picker of the ordinary " power loom during the operation of weaving, such improvement " consisting in the novel employment and use of a flattened " piece or strip of metal, so formed and constructed that its opposite " ends embracing the picker shall slide or move upon the " loom spindle, whilst its middle, or the portion between the ends, " slides through a slot in the friction box, secured conveniently " in the shuttle box below the spindle, the sliding motion taking " place every time the shuttle is received by the picker in the " shuttle box. The said box is supplied with a set screw and " lock nut, for the purpose of exerting or giving any desired " amount of friction to the aforesaid sliding piece or strip of " metal."

[Printed, 8*d*. Drawing.]

A.D. 1863, October 17.—N° 2545.

CHESBROUGH, Lewis Reese.—(*A communication from Silas Shepard.*)—" An improved let-off motion for looms." " Said

" invention consists, first, in interposing a rest or guide between " a vibrating whip roll, or any vibratory equivalent therefor, and " the warp yarn beam, in such a manner that the yarn shall pass " over said rest or guide and keep the angle formed in the yarn " by the whip roll between the rest and the lay unchanged, " except by the vibration of the whip roll, and unaffected by " changes of the yarn from a full to an empty beam; the interposition of the rest or guide being such that the general direction " of the stress from the yarn caused by tension thereupon, and " tending to straighten the yarn between the lay and the rest, is " substantially at right angles to a line drawn from the acting " surface of the whip roll and through the centre on which it " vibrates."

" And said invention also consists in the connection of a " vibrating whip roll, or its equivalent, and a weight with an " escapement mechanism, which operated by the tension on the " yarn and the stroke of the lay, lets off automatically and " intermittently from the yarn beam the exact amount of warp " yarn required by the weaving operation, and maintains the " tension uniform on the yarn from a full to an empty beam."

[Printed, 6*d.* Drawing.]

A.D. 1863, October 20.—N° 2560. (* *)

LUEBBERS, Ernest Henry. — (*A communication from Joseph Jaubert.*) — (*Provisional protection only.*) — " An improved treatment of textile substances to obtain a species of or substitute " for cotton."

" The textile substances or materials " " are hemp, flax, and " jute, the tow or waste from these fibrous materials employed in " linen and other manufactures, and old ropes, oakum, and mats " made from the same substances." " First, the substances or " materials to be operated on are thoroughly washed in water; " second, they are torn or unravelled by a breaking-up machine, " known to paper makers as a 'devil;' third, they are bleached " with or by chlorine, either in the form of gas or in chlorine " solutions, but preferably the latter, both of which processes " are well known; fourth, they are dried by a blast of air " protected from the sun's rays; fifth, they are carded in a " roughing card and finally in a finished card, both of the usual " description."

[Printed, 4*d.* *No Drawings.*]

1863, October 22.—Nº 2595.

CRAVEN, John, and **FOX,** Samson.—"Improvements in ma-"chinery or apparatus for punching, shearing, and burnishing." "This invention consists in the employment of a circular table "having a long boss mounted and capable of rotating upon a "spindle fixed in suitable framework. This table carries a series "of punches and shears or cutting instruments, which are in "succession actuated as the table rotates by a cam fixed on the "said spindle, and by suitable springs attached thereto and to a "plate rotating with the table. The table also carries a corre-"sponding series of dies or blocks for the punches and shears to "act against. This table also carries a series of burnishers or "instruments for smoothing the holes when punched, which have "rotary motion given to them by pullies thereon rolling upon "a circular flange on the framing as the table rotates. These "burnishers are pressed into action by springs, and removed out "of action by a cam or segment of a circular flange with inclined "ends, which comes into contact with a collar on each of the "burnishers in succession as they are carried around by the "table.

"This machine is especially adapted for punching and burnish-"ing the holes, and shearing or cutting into proper lengths, and "form the metallic healds for which Letters Patent have been "granted to Hudson Yeadon, Edwin Yeadon, Samuel Yeadon, "and John Yeadon, No. 992, dated the 21st day of April 1863, "and is applicable to other similar purposes."

[Printed, 10*d*. Drawing.]

A.D. 1863, October 22.—Nº 2601. (* *)

PARKER, Charles.—"Improvements in machinery or appa-"ratus for winding yarns or threads."

This invention "relates essentially to the combination of the "pirn and cop winding systems in one, but in addition it involves "arrangements of machinery which may or may not be applied "for the purposes herein-before referred to. The framing of the "machine is of the open rectangular kind, and the spindles, which "work horizontally, are arranged in double-banked order. The "whole are driven from one main central shaft, which operates "*frictionally* or otherwise upon the pinions or frictional cones "*attached to the* sockets which are connected with and drive the "actual spindles which pass through them. The spindles are "fitted up with suitable arrangements for doffing, and they have "also conical guides for arranging the build of the 'pirn cop.' "The building of the 'pirn cop' is effected partly by a small pirn "or holder which forms the solid bottom of the 'pirn cop,' and "partly upon the spindle."

The hinder ends of the spindles are acted on by weighted levers, so as to cause the cop to be tightly wound from continual pressure against the "conical shapes." Each spindle is furnished with collars, between which passes the end of a prong connected to a sliding rod, and by means of the latter the spindle may be pushed back and the cop doffed therefrom, another sliding rod being used to move the socket of the spindle, and so cause the friction apparatus to cease acting upon it while the cop is doffed. The yarn to be wound into cops may proceed either from a reel or from a bobbin, but in the latter case the yarn proceeds from the bobbin, "over a guiding eye or stud" fixed to a spring, mounted horizontally above the winding apparatus, and thence round other studs and a rod to the laying-on finger. This description of pirn cop may also be wound in machines in which the spindles are arranged vertically or otherwise.

[Printed, 8*d*. Drawing.]

A.D. 1863, October 22.—N° 2610.

TURNER, ARCHIBALD.—(*Provisional protection only.*)—"Improvements in looms for weaving." This invention "relates "to a novel arrangement of machinery, whereby the use of shuttles for throwing the weft thread or shoot is dispensed with." "The weft thread or shoot is wound upon a large bobbin, spool, "or reel, which will contain enough material to last for a week or "ten days, and is placed in any convenient part of the machine, "so that the thread may be drawn off as the weaving operation "proceeds.

"The weft thread is conducted from the bobbin or spool "through a clamping apparatus, hereafter more particularly "referred to, and also through an adjustable tension eye for the "purpose of regulating the strain on the weft thread, and the "amount of thread that is drawn off the bobbin for each shoot.

"The clamping apparatus is adjustable, so that the clamp is "capable of being closed at any required time." "The thread, "after passing through the tension eye, is conducted to the rear "end of a thread carrier, whereby the weft thread is introduced "or passed into the shed." "It will now be understood that "the thread carrier will carry a thread from the large spool or "bobbin above into the shed, in which it will leave the weft or "shoot, which is secured therein by another thread, which may "be called the seaming or selvage thread. This thread is contained in a small shuttle mounted in a vibrating arm, and is "made to move up and down in a vertical direction through the "loop that is formed by the weft thread at the hooked end of the "thread carrier."

[Printed, 4*d*. No Drawings.]

A.D. 1863, October 27.—N° 2654.

HUTCHINSON, John, and HOLLINGWORTH, James.—"The improvements have reference to looms in which series of "shuttles are used, in order that weft threads of different kinds "or weft threads of different colors may be employed in the "weaving of the same fabric, and they have for their object to "enable the attendant, when any weft thread breaks, to readily "adjust the jacquard cards or series of chains or other pattern "surfaces to the pick of weft desired next to be produced. For "this purpose each set or division of the series of plates, or links, "or cards, or other pattern surface employed to effect the desired "selection of the respective shuttles is marked in color, or by "number, or otherwise, to indicate the particular color or character of weft to be brought into operation by such series, and in "addition to such indications of color or character of weft to be "so operated by the several sets or divisions of the series of pattern surface, those of each set or division will be numbered or "lettered to indicate their order of succession; by which means, "supposing the color of weft in operation at any particular time "to be red, and red color is applied to each of the parts of the "series of divisions of the pattern surfaces employed to bring "that weft into operation, and that numbers indicate the order "of succession of the parts of the respective sets or divisions of "pattern surfaces, then on that red weft breaking the attendant "will first ascertain how many picks of that weft have been last "thrown into the fabric, and supposing it to have been two, then "whatever may be the number of pattern surface he may find in

" position, he will know that he must turn back those surfaces " until No. 3 of the red pattern surfaces is in position to act " next, and so on in relation to other colors."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1863, October 30.—N° 2689.

TURNER, Archibald, and NEWTON, William Edward.— " This invention of ' improvements in looms for weaving terry " ' and cut pile fabrics, parts of which improvements are also applicable to other kinds of looms,' has for one of its objects to " dispense with the use of wires for making the loops in Brussels " carpet, or other woven terry or cut pile fabrics. To this end a " series of hooks set in leads and secured to a horizontal bar, " which may be called the hook bar, is mounted in bearings in " front of the reed in such a manner as to be capable of rocking " on its centre, or being moved up and down when required. " These hooks may correspond in number to the number of dents " in the reed, and are arranged to hook up the warp threads and " thereby form loops thereon." " The loops when made must be " secured to the ground of the fabric by one, two, or more shoots, " as may be found necessary." " The weft thread or shoot may " be thrown in by shuttles worked in the ordinary manner, or " the shoot or weft may be introduced into the shed by means of " a reciprocating thread carrier, such as that for which the said " Archibald Turner has this day applied for Letters Patent.

" In this arrangement the weft thread is secured in the fabric, " and a suitable selvage is formed by means of a binding or " seaming thread wound on a quill contained either in a vertical " shuttle or mounted on a rotating disc provided with a hook, " whereby the seaming thread may be passed through a loop " formed by the weft thread or shoot. Instead of securing the " weft thread or shoot in this manner by passing a quill containing the seaming thread through the loop formed at the selvage, " a double weft thread may be thrown or drawn in or introduced " alternately from each side by means of a suitable thread carrier, " hook, finger, or other convenient mechanical contrivance."

" Another mode of securing the weft thread consists in the employment of a rotary thread carrier which will pass a selvage or " seaming thread through the loop at the end of the weft thread, " and prevent it from being drawn away from the selvage."

[Printed, 2*s*. 8*d*. Drawings.]

A.D. 1863, October 30.—N° 2691.

TURNER, Archibald.—(*Provisional protection only.*)—"Im-"provements in looms for weaving." This invention "relates to "a novel arrangement of machinery, whereby the use of shuttles "for throwing the weft thread or shoot is dispensed with." "The weft thread or shoot is wound upon a large bobbin, spool, "or reel, which will contain enough material to last for a week "or ten days, and is placed in any convenient part of the machine, "so that the thread may be drawn off as the weaving operation "proceeds. The weft thread is conducted from the bobbin or "spool through a clamping apparatus hereafter more particularly "referred to, and also through an adjustable tension eye for the "purpose of regulating the strain on the weft thread, and the "amount of thread that is drawn off the bobbin for each shoot. "The clamping apparatus is adjustable, so that the clamp is "capable of being closed at any time required."

"The thread after passing through the tension eye is conducted "to the rear end of a thread carrier, whereby the weft thread is "introduced or passed into the shed."

"It will now be understood that the thread carrier will carry a "thread from the large spool or bobbin above into the shed, in "which it will leave the weft or shoot, which is secured therein "by another thread, which may be called the seaming or selvage "thread. Various contrivances may be devised for passing the "seaming or selvage thread through the loop of the weft thread."

[Printed, 4*d*. No Drawings.]

A.D. 1863, November 5.—N° 2738.

FARRA, Thomas.—(*Provisional protection only.*)—"Certain im-"provements in 'skirtings' employed as wearing apparel." "The invention consists in interposing at those places liable to "wear, between the series of horizontal folds or 'tucks' now "used, a piece of fabric containing ribs or 'tucks' in a vertical "position, which being 'crossway' of the material gives "additional strength, and the adaptation of such vertical 'tucks' "also effects an improvement in the appearance, the said 'tucks' "or ribs being either made in the fabric by sewing or weaving."

[*Printed*, 4*d*. No Drawings.]

A.D. 1863, November 7.—N° 2766.

BARRACLOUGH, THOMAS CRITCHLEY. — (*A communication from Wilhelm Gminder.*)—" This invention relates, first, to that " part of the power loom known as the 'tappets,' which are " secured on the 'tappet shaft and employed to actuate the " 'treadles' which elevate and depress the 'healds.'" "This " improvement consists in the employment and use of a series of " plates or discs having 'dovetail'-shaped grooves or channels " radiating from their centres, through which centres the tappet " shaft with which they rotate passes. The dovetail grooves in " these plates are constructed to hold the projecting studs or " 'tappets,' which may be retained therein by a nut on the tappet " shaft, which forces the plates together, and by loosening which " the tappets may be removed to be differently arranged, if " required.

" A second part of the invention relates to an arrangement of " apparatus for equalizing the tension of the springs attached to " the healds, and by which they are raised, so that the disadvantage which such springs now possess, namely, that their tension " increases when it should diminish is obviated. The improvement consists in the use of a double pulley or set of pullies " having two diameters, over one of which the heald cords pass; " these cords are secured to an eye at a point on the circumference " of the large pulley, pass over it and divide, one being attached " to each end of the 'heald rod;' another cord is attached to the " spring on the framing, and is secured to the face of the large " pulley. When the healds are drawn down by the tappets, the " double pulley makes part of a revolution, lets off the heald " cords, and causes the spring cord to fall on the smaller diameter " of the pulley, which shortens the leverage and reduces the " tension of the springs as required."

[Printed, 10*d*. Drawing.]

A.D. 1863, November 12.—N° 2813.

PEAKE, BENJAMIN.—This invention relates to " certain im" provements in the manufacture of neckties, cravats, and " waistbands, and other articles of wearing apparel.

The patentee manufactures " these articles by weaving them " in three separate bodies or warps at one and the same time in

" one loom, with selvage edges, after the manner of the tubular " or circular fabric, the three separate warps being connected " together at their edges only while being woven by the action of " the shoot or weft thread. By thus being connected at their " edges they are held in their respective positions when so woven, " although the three bodies are otherwise unconnected and " separate."

[Printed, 4*d*. No Drawings.]

A.D. 1863, November 12.—N° 2816.

HOLDEN, Hugh.—" This invention relates to the shuttle skewer " and skewer pin, and its object is to prevent the injurious vibration of the skewer, and the splitting of the shuttle.

" According to this invention it is proposed to attach the skewer " to the shuttle by a tapered pin or screw, which is screwed or " chased at both ends, the hole through the shuttle and skewer " being tapered to correspond to the taper of the pin or screw. " On inserting the pin or screw, it is screwed firmly into the " wood of the shuttle on each side of the skewer, and thereby " prevents all tendency to splitting in the shuttle. Any vibration " of the skewer can be easily rectified, even by a child, it being " simply requisite to tighten or turn slightly the skewer, pin, or " screw, which being tapered will tend to tighten the skewer.

[Printed, 6*d*. Drawing.]

A.D. 1863, November 13.—N° 2834.

DRUMMOND, John Wallace.—" Improvements in looms for " weaving." The patentee says,—" The weaving operation in my " loom is entirely progressive and without concussion, and this is " effected by means of the following devices :—

" First, the motive power of the loom is communicated through " two pulleys, around which is an endless belt with a crank pin " or stud on such belt, taking a cross slot in a contiguous belt, " by which means said belt with the cross slot is given a reciprocation equal to the travel of such crank pin on the endless belt, " and the stopping and starting of this reciprocating belt is " gradual, as the stud travels with he belt around the pulleys, " acting like a crank pin. The movements of this reciprocating " belt are communicated to the shuttle, the lay up, and the " heddles, so that the action of these is reciprocal and progressive " from side to side of the fabric being woven.

"Second, my shuttle is fitted with rollers, and runs under a "stationary comb that receives the top shed of warp and above "the lower shed of warps, as they lie on a belt stretched from "side to side of the loom. Under this belt, which remains stationary, is a carriage (reciprocated by aforesaid reciprocating "belt or a connection thereto) with rollers that take the under "side of said stationary warp belt, and forming a ridge therein, "drive the shuttle from side to side by the action of this ridge "behind the rollers of the shuttle. The shuttle carries the filling "thread that is delivered near the point where it is laid up to "form the cloth.

"Third, my lay up is effected by a series of hanging or sliding "plates corresponding in number with the warps, and entering "between them. These plates are drawn toward the shuttle at "the time of its passage by cams travelling with such shuttle, so "that the filling thread or weft can be deposited between them "and the cloth, and afterwards the said plates are pressed away "from the shuttle and lay up the weft thread to its place, "the movement being progressive and in harmony with the "shuttle.

"Fourth, I move my warps to form a shed at the point where "the shuttle is passing by fitting a series of heddle plates to slide "vertically, each having a projection, and the said plates being "arranged in two or more rows. Between these rows of heddle "plates is a belt connected to the reciprocating belt aforesaid, "and on this are cam pieces that act in going in one direction to "hold up the heddle plates and warps to form the upper shed, "and depress the other row of heddle plates and warps, and "when moving in the other direction, the action is reversed and "the shed changed."

[Printed, 8*d*. Drawing.]

A.D. 1863, November 14.—N° 2838.

MUIR, MATTHEW ANDREW, and McILWHAM, JAMES.—"This invention of improvements in looms for weaving relates "to mechanism for obtaining varied shedding actions, to shifting "shuttle box details, and to a variable picking motion. In "carrying out the improvements relating to shedding an improved "jacquard dobby is employed, the details of which are carried by "a suitable framing situated above the heddles. The heddle leaves, connected below to springs or weighted levers, which tend to draw them down, are suspended each from a pair of levers centred on fixed studs, and geared together by toothed sectors formed on their inner adjacent ends. The shedding action is communicated to one of each pair of the heddle levers, either directly or through the intervention of a link and lever. Each lever acted upon is fitted with two pins, by which it is connected to two slotted links formed with hooks at their upper ends, and each hooked link passes through slots in two horizontal bars or needles, which are acted upon by the jacquard barrel. Any convenient number of heddle leaves may be used, there being a pair of hooked links and a pair of needles for each. The series of hooked links form two rows, each lever having a link in each row, and there are two lifting bars, one to act on each row of hooked links. The lifting bars are actuated from two treadles below in such a way that when one rises the other falls, and vice versâ. The rising bar at any shot or shed acts of course on only those hooked links which are selected by the action of the jacquard barrel, and those heddle leaves, the hooked links of which are not lifted, are drawn down by the springs below." "The endless pattern chain consists, by preference, of strong wooden bars or lags linked together, and perforated each with a row of holes to receive in the case of each such pattern pins as the shedding requires. The needles are disposed in two rows horizontally, the two needles acting on the two hooked links of the same heddle leaf, being one immediately under the other. Two kinds of pattern pins are used, a broad one to act on both an upper and a lower needle, and a narrrow faced one to act on either the upper or lower needle only, accordingly as it is inserted with the projecting face to the upper or lower side." "In order to act upon shifting shuttle-box details, according to one modification, two of the needles of the dobby and two perforations of the pattern bars or lags are made to act on crank levers, from which wires or links pass down to details at the side of the loom; these details being for the most part the same as those described in the Specification of Letters Patent, granted to the present applicants, and dated 18th June 1856 (No. 1437). The action of these details depends on the movement of a three-armed lever, to the middle horizontal arm of which one of the wires or links from the dobby is connected. The other wire or

" link is connected to a crank lever acted on by a spring, and having
" one arm formed with steps bearing against a pin or catch on
" the middle arm of the three-armed lever. When the crank
" lever is moved the catch drops one or more steps, according to
" the size of the pattern pin and consequent extent of the move-
" ment, and when the catch is lifted by the other wire the proper
" step is moved under it by the spring of the crank lever.

" In another modification the shifts of the shuttle box are
" determined by a pattern barrel, such as is described in the
" earlier Specification herein-before referred to; the dobby being
" arranged simply to determine the number of picks between
" each shift, and to put the barrel into action at the proper
" periods." " In the improved variable picking motion the pick-
" ing wipers on the low shaft, revolving once for every two picks,
" are made each with two diametrically opposite points, so as to be
" capable of acting at any pick, but of course only one wiper acts
" at a time. Each wiper is arranged to shift on the shaft, being
" loose thereon, but driven by two pins or studs projecting from
" a boss keyed on the shaft, and passing through holes in the
" wiper. Each wiper is made with a grooved boss to receive the
" fork of a clutch lever, and the two clutch levers are fixed on
" opposite ends of a sliding rod in such a way that the move-
" ment of the clutch rod which moves one wiper into its acting
" position moves the other out of it. Near its middle the wiper
" shaft has fast on its two discs or curved edge cams, which act
" on two levers in such a way as to move them both outwards at
" each pick, a spring connecting the levers drawing them together
" again. The levers have latches jointed to them capable of press-
" ing against stops fixed on the sliding clutch rod, but only one
" latch can act at a time, as the two latches are connected by
" wires or links to a lever centred at its middle in such a way that
" when it holds one latch in gear the other is out of gear. The
" lever last mentioned is moved, as required, by the pattern
" mechanism, so as to cause the picking to take place from the
" opposite sides alternately, or twice or oftener in succession from
" the same side. The weft fork details, which are repeated at
" opposite sides of the loom, are acted upon in concert with
" the picking wipers, so as at each pick to be in a condition to act
" only at the side towards which the shuttle is thrown."

[Printed, 1s. Drawing.]

A.D. 1863, November 18.—N° 2885.

SIEVIER, Robert William.—(*A communication from Edouard Maximilien Augustin Rigo, and Charles Grognet.*)—(*Provisional protection only.*) —" These improvements consist in the mode " adopted for making the cylinder of the jacquard machine (which " carries round the cards upon which the pattern is pierced) to " press in a gradual and soft manner upon the points of the " needles, so that a paper may be used instead of a cardboad."

" In the proposed improvements a soft blow or pressure is " obtained at the last portion of the fall of the grid or griffe by " means of a bar, which extends from the front to the back part " of the jacquard, and which bar carries at its end a wedge- " shaped piece, which, falling against a fixed point on an arm or " projection fixed to the frame of the jacquard, draws the bar " backward, and with it the batten to which is attached the " cylinder. This motion brings the cylinder gradually against " the needles, producing the same effect as is now caused by the " hard blow."

[Printed, 4*d.* No Drawings]

A.D. 1863, November 21.—N° 2937.

SIMONETON, Antoine.—The patentee says :—" My improve- " ments consist in manufacturing sacks, bags, and garments " without seam in the following manner :—According to one " arrangement, I fit to a loom two warps parallel to one another, " and proceed to weave by passing the shuttle or shuttles alter- " nately from one warp to the other, thereby forming one or two " continuous spirals, thus doing away with selvages, and making " the length of the sack without seam. To form the bottom, I " unite the two warps by the weft, and am thus enabled to vary " the shape of the bottom of the sack." According to another " arrangement, I fold the warp round a spindle in order to form " two warps, I then weave as before with one or two shuttles from " one warp to the other, or from both sides of the same warp, " and then it is the same warp folded which represents the two " warps ; by this means I make sacks entirely without seam, the ' bottoms of which are similar to all the other parts thereof. " *This improved* method of weaving enables me to manufacture

" articles without seam, for containing substances to be filtered " or washed, or before being submitted to such processes; " and as these articles often require to be of considerable " strength, especially for filtering sugar, care must be taken to " maintain regular distances between the threads; and for this " purpose I fit two warps to the machine, one perfectly distinct " from the other; one of these I call the 'stiff' warp, the other " the 'pearl turn' warp. The first is always kept stretched and " acts as a frame or groundwork to the fabric, the second warp is " somewhat supple, and by means of an alternate twisting motion, " called the pearl turn, the stiff warp and weft are surrounded at " each rise, and an even tension being maintained, regular spaces " are obtained."

[Printed, 4*d.* No Drawings.]

A.D. 1863, November 24.—N° 2950.

GREGG, St. George, and **GRAY**, Thomas.—(*Complete Specification, but no Letters Patent.*)—This " invention consists in " the adaptation of the fibre of prepared hemp or any of the " plants known of the order of genus cannabis, and in mixing " such prepared fibrous material in the production of thread " cordage or woven textile fabrics, which material and the mode " of preparing and bleaching it is fully described in Thomas " Gray's Patents, Nos. 886, 8th April 1863, and 1403, 5th June " 1863, respectively, his process being to prepare and bleach hemp " either by cutting into short lengths, or otherwise, and then " treating it as therein described, and after drying it will be " ready for the carding engine or any other process to produce " slivers or roving for spinning of any size yarn, and then producing a woven or spun fabric from such material." Or the inventors " take hemp prepared as therein described, and mix it " with either cotton, silk, or animal wool, and produce from such " mixed material a yarn, which when woven into a fabric is a " cloth of a new compound or nature, and is capable, either " separate or mixed, of being made into a cloth bearing a beautiful " soft and silky lustre."

[Printed, 4*d.* No Drawings.]

A.D. 1863, November 25.—N° 2967. (* *)

ACCARAIN, Louis.—" Improvements in the manufacture of " paper, thread, cordage, and fabrics from beetroot."

"The leaf of the beetroot is first washed and then placed in a "press, which flattens it in the form of a ribbon or strip, and "deprives it of the greater part of the water it contains. These "strips are then submitted to the action of a very fine metal "comb, which removes the gummy matters and chlorophyllite, "and separates the fibre. In this manner fibrous material is "produced, which may then be converted into thread or cordage, "or be manufactured into fabrics after being treated in the ordinary manner of preparing flax, by combing, drawing, and "spinning, &c."

The patentee in his final Specification states that after the fibre has been subjected to the first operation, it is placed "in contact "with a heated alkaline solution, in order to dissolve the vegetable gum before mentioned; and finally, a new application "of the card produces the flax or fibrous material in a perfect "condition."

[Printed, 4*d*. No Drawings.]

A.D. 1863, November 26.—N° 2969.

BARLOW, Henry Bernoulli.—(*A communication from Messieurs Auguste Vidal and Sons, and Messieurs Blaquière Brothers.*)—"This invention relates to looms, in which drop boxes "with any number of compartments and jacquards are employed. "The loom is worked by a side shaft, on which are the usual fast "and loose pulleys, and a pinion gearing into a wheel on the shaft "with tappets for working the batten; to this shaft is fixed a "crank for giving motion to a shaft at the top of the loom, to "which segments or pulleys are secured for working the jacquards "and the drop boxes. The position of these drop boxes is "governed by the jacquard, and when the descent of a drop box "has to be stopped, a sliding piece is brought into operation by "a spring to retain it, and for bringing the required shuttle in "line with the shuttle race. The taking-up roller is worked by a "lever and ratchet wheel from the jacquard. The shuttles are "picked from each side of the loom in any required succession, "by outside picking levers acting on the picking sticks, which "have springs to bring them back to their original position. The "outside levers have slides, which are acted upon by the wipers, "and these slides are also acted upon by springs; or the outside "picking lever is connected to the picking stick by an inter-

" mediate lever; the picking sticks are connected by a strong " spring; this spring is put into a state of tension by the side " levers alternately; this latter arrangement is particularly ap- " plicable when water power is employed."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1863, November 27.—N° 2979. (* *)

BROCKLEHURST, WILLIAM COARE, **CREIGHTON**, JOSEPH, and **CREIGHTON**, JOHN.—" Improvements in machiney or " apparatus for winding yarns or threads," " called ' pin cop " ' winding frames,' wherein yarn is wound from the bobbin " ' race ' or hank on to a wooden pin or spool, which is placed " on the shuttle skewer for weaving."

" Our improvements are designed to dispense with such wooden " pin or spool, and to wind and form the ' cops ' on the bare spindle, " which has hitherto been impracticable from a want of apparatus " to ' shape ' the cop. The improvements consist in an arrange- " ment of apparatus to effect the shaping of the cop as the yarn or " thread is wound on, which is constituted as follows :—The yarn " is wound upon the bare spindle, and delivered thereto through " an eye at the end of one arm of a bell-crank lever, the " other arm of such lever passing through a bowl running in " a vertical slot in a stand, and which receives a reciprocating " motion from a cam, crank, or eccentric; by this means the bell- " crank is caused to vibrate and to deliver the yarn to form the " cop. The apex or top cone of the cop is surmounted by " a cap, which bears upon it, and which is connected to a bar " sliding on guides, and which is attached to the centre or fulcrum " of the aforesaid bell-crank lever. Thus, when the cop is com- " mencing, the cap and bell-crank is at its lowest point, and has " its shortest ' throw ' or ' radius ' to form the bottom of the cop, " but as the cop increases the cap becomes raised, and also raises " the bell crank, whereby a continually differing throw is obtained, " until the aforesaid sliding bar rises sufficiently high to come into " contact with the bowl, when the radius and throw becomes " regular to ' build ' or form the cylindrical portion of the cop. " This arrangement is applied to each spindle, so as to render " them independent of each other in their motion."

[Printed, 10*d*. Drawing.]

A.D. 1863, November 27.—N° 2984.

CLARK, JAMES.—(*Provisional protection only.*)—These improvements relate to looms for weaving elastic fabrics. The inventor says :—"First, I employ a batten for producing two or more "elastic webs or fabrics directly one above the other. The shuttle "planks or guides for the shuttles are placed directly above each "other, and the required warps passed between the dents of the "reeds in similar positions, the shuttles being moved or driven in "the ordinary or any other convenient manner.

"Secondly, I employ a batten, in which there are two series of "shuttles, one above the other in zig-zag positions, and two series "of reeds, one for each shuttle, above each other in corresponding "zig-zag positions, the upper reeds being between the lower "ones and above the lower shuttle planks or guides, the shuttles "being moved or driven in any convenient manner. These "arrangements economise room and enable twice the number of "webs to be woven in a loom of a certain length than at "present.

"And, thirdly, I employ an improved arrangement for letting "off or delivering the rubber warps. The said warps from each "rubber beam or bobbin are passed between two or more rollers, "one or more of which are caused to revolve at any required "speed. There is a separate action for each rubber warp, which "arrangement has the effect of maintaining the rubber uniformly "at any given stretch or tension."

[Printed, 4*d*. No Drawings.]

A.D. 1863, November 27.—N° 2986.

GARDNER, EDWARD.— (*Provisional protection only.*)—"Improvements in looms for weaving elastic fabrics." The inventor employs "an improved batten, in which two or more shuttles "for each web are driven by one metal slide or driver acting on "detached pegs placed on a rod or rods at the back of the shuttles "and shuttle guides, each of the pegs being acted upon by projections and notches in the metal slide or driver, thereby causing "the pegs to seize the shuttles and carry them to and fro between "the sheds of the web or fabric, alternately holding and relieving "the shuttles at the required time. It is evident that the same "system of driving the shuttles is also applicable to those looms "in which only one shuttle is used for each web."

[Printed, 4*d*. No Drawings.]

A.D. 1863, December 5.—N° 3058.

WILSON, George.—(*Provisional protection only.*)—" This invention relates to improvements in looms for weaving fabrics, " such as muslin or leno curtains, in which jacquard apparatus is " used to produce a figuring of weft, and acts on only one half or " other portion of the warps for that purpose. In one modification of apparatus embodying the improvements a 'Crossley' or " other suitable 'double lift' jacquard machine is employed. The " figuring is effected by one lifter only, which acts in concert with " the jacquard barrel and derives its movements through levers " and connecting links from a wiper or cam driven so as to make " one revolution for every four picks. The cam is shaped so as " to keep the flowering shed open during two picks, whilst the " figuring weft passes across and back again, and during the " third pick another wiper or cam, by levers and connecting links, " raises the other lifter, but the jacquard barrel does not act for " this pick; and as any tails or wires, the horizontal needles of " which are not acted on by a jacquard card, are lifted, the whole " of the warps acted on by the harness are lifted at this pick, " thereby forming a plain shed. For the fourth pick another plain " shed is formed by a single leaf of heddles or healds acting on " those warp threads which are not acted on by the harness, such " leaf of heddles being actuated by means of a third wiper or " cam. The wiper or cam first mentioned then opens the next " flowering shed, and the weaving actions are repeated. In " another modification a single lift jacquard machine is used, " being worked by a wiper or cam shaped to first raise the lifter " and keep it up during two picks for the flowering shed, for " which the jacquard barrel acts on the needles; the lifter then " descends and rises again for the third pick, for which it forms " a plain shed, as the needles are not then acted on by the jacquard barrel. The lifter descends and remains down during " the fourth pick, when the alternate plain shed is formed " means of a leaf of heddles as in the first modification."

[Printed, 4*d*. No Drawings.]

A.D. 1863, December 8.—N° 3090.

HARROWBY, Robert, FOULDS, Jeremiah, and HARROWBY, Alfred.—" Improvements in looms for weaving." " This invention relates to means of working or operating heddles

" or healds in such manner as to produce what is known as a " double shed, also an even shed. The improvements consist of " a pair of levers with segment or sector ends applied to to each " heddle, one end of each lever being provided with cogs, so as " to gear end to end in each other, the other end being grooved " to receive a cord, strap, or chain to be attached to the heddle. " These levers are hinged in or near their middle upon studs fixed " to the top rail of the loom, or to a plate or frame attached " thereto, and they vary or are adjusted in length of arm from the " stud or fulcrum to the end where the heddles are attached, " according to the thickness of heddle or the difference in distance of the heddles respectively from front to back, or from " the opening of the shed. Motion is communicated to the said " levers as and when required by hooked rods or levers, which " are placed in position and caused to take on a lifting-bar by " means of ordinary jacquard or peg-lag cylinder arrangement, " and removed out of contact by springs. A lever is hinged to " the loom end, and which has a to-and-fro motion communicated to it by means of a crank, cam, or tappet operated by the " crank or other suitable shaft. In this lever is a cam slot hole " which works a stud and friction pulley fixed to the lifting-bar " lever. This cam slot hole is so formed as to give intermittant reciprocating motion to the lifting-bar lever. Or an equivalent " motion may be produced by a suitably formed cam fixed on the " crank shaft, or by a cam slot hole or an inclined wedge (aided " by spring), and operated by the crank or other suitable shaft, " and connected by an ordinary rod to the aforesaid lifting-bar " lever."

[Printed, 10*d*. Drawing.]

A.D. 1863, December 8.—N° 3098.

GREGORY, Ebenezer Noah.—(*Provisional protection only.*)—The inventor says,—" The object of this invention is to prevent " the slip between driving bands and their pulleys, and that with " the use of bands of an economical and durable construction. " To this end I form driving bands of woven wire, preferring " copper or brass, and apply them to driving pullies having a " yielding periphery, which will allow the belt to bed itself to " *some extent* in the periphery of the pullies, thereby effectually " *ensuring* a good bite between the band and its pullies."

[*Printed*, 4*d*. No Drawings.]

A.D. 1863, December 11.—N° 3120.

BULLOUGH, James.—The patentee says,—"This invention
" relates to wide looms used for weaving plain or fancy woollen
" or other fabrics, and is especially adapted to looms having drop
" boxes, jacquard apparatus, dobbies, or other arrangements used
" for fancy weaving. My object is to stop the loom when the
" weft breaks or is absent sooner than has been heretofore ac-
" complished, and for this purpose I employ a weft motion at or
" near each selvage of the warp, and in cases of extreme width
" one or more between the selvages. At one or both ends of the
" loom I employ a sliding bar, having at the front a lever or
" catch, which is raised so that the slay or batten shall come in
" contact with it and push the bar when a weft breaks or is absent,
" the said lever or catch being connected by a cord, wire, or shaft
" with the setting-on rod, or to a lever operated upon by the weft
" motion. To the sliding bar is attached one end of a strong
" spring, the other end of which is connected to the brake which
" acts on a seperate brake wheel fixed to the crank shaft, and the
" back part of the bar is connected to a strap passing over friction
" studs or rollers and connected to another spring, or in some
" cases the bar is connected to the spring only. Or instead of
" the sliding bar I employ a vibrating bar connected at the bottom
" to a strong spring, and put the bar in motion when a weft
" breaks or is absent by causing a catch worked by the weft
" motion to seize the teeth of a catch wheel fixed to the crank
" shaft, the said catch and catch wheel being a modification of
" and producing the same effect as the brake and brake wheel.
" I also connect the driving pulley or fly wheel to the crank shaft
" by a clutch box or friction pulley, and disconnect the clutch or
" pulley when a weft breaks or is absent by causing the setting-
" on rod to act on the lever which works the said clutch or pulley.
" In some looms when the clutch box is not used the sliding bar
" acts upon the ordinary brake and fly wheel."

[Printed, 1s. Drawing.]

A.D. 1863, December 12.—N° 3137.

TOWNSEND, Joseph.—"This invention has for object the
" sizing or dressing of fibrous materials or fabrics in a thorough
" and efficient manner; also the drying of fibrous material or

" fabrics when sized, dressed, or otherwise moistened or damped " in an improved manner.

"In practising the invention the materials or fabrics to be " sized or dressed are put into a vessel of any convenient form, " but which is by preference the casing of a hydro-extractor, the " goods being placed in the basket thereof. The casing or vessel " is fitted so that it can be closed air-tight or nearly so, and a " vacuum or partial vacuum is formed in it by a pump or " otherwise. The sizing or dressing liquid is either introduced " into the vessel before the air is exhausted, or it is admitted " from a separate vessel by a tap after the air has been more or " less exhausted, and in consequence of the air being so exhausted " the liquid penetrates more thoroughly into or amongst the " fibres. The liquid is afterwards drained off, and the revolving " basket is set in motion to throw off more or less of the adherent " moisture, as may be considered desirable. Finally, heated " air, heated by preference by means of steam heated metallic " surfaces, is led by a pipe or duct into the revolving basket, " and the centrifugal force causes it to pass through and dry the " goods. This mode of drying avoids the risk of burning, and " is applicable in whatever way the goods may have been " moistened or damped.

"Instead of inducing the more complete penetration of the " sizing or dressing liquid by exhausting the air, it may be forced " into the vessel containing the goods under pressure, or after " the air is exhausted the liquid may be forced in until a greater " than atmospheric pressure is obtained. The goods sized or " dressed in any of the ways herein-before referred to may be " dried either in the manner described or otherwise."

[Printed, 8*d*. Drawing.]

A.D. 1863, December 16.—N° 3175.

HINDLE, James, CALVERT, William Fielding, and THORNTON, Emanuel.—The patentees say,—"The object of " our invention is to improve the mechanism for fastening and " loosening the reed when what is termed a loose reed is em- " ployed in weaving cloth or other fabrics. Our invention con- " sists in casting or fixing to one or both of the crank arms a " *stop finger*, which works in connection with a lever welded or " fixed to the stop rod or reed holder. By the motion of the

" crank arm the stop finger passes under the lever fixed to the
" said stop rod, and by this means perfectly fastens the reed at
" the time the shuttle is passing through the shed, and also
" at the time the reed is beating up the weft. At another por-
" tion of the motion of the crank arm the stop finger is with-
" drawn and leaves the reed loose, and if the shuttle in its pas-
" sage has been caught in the shed, the stop rod being loose the
" reed becomes loose and prevents a trap or breakage of the
" yarn. There is also a spring attached to a small lever on the
" stop rod on one or both sides of the loom, which assists in
" keeping the reed from being too easily thrown out during the
" time that the stop rod lever is not held by the stop finger, as
" before-mentioned. When the shuttle is caught in the shed the
" reed and stop rod give way, and at the same time the end of
" the lever on the stop rod is depressed, so that the tip of the
" stop finger on the crank arm shall come in contact with the top
" of the said lever and keep it down, and thus secure the perfect
" liberation or loosening of the reed until it is readjusted and
" relieved by the upward motion of the crank arm."

[Printed, 10*d*. Drawing.]

A.D. 1863, December 19.—N° 3203.

GOLDIE, THOMAS.—"This invention comprises various im-
" provements in looms for weaving.

"The first improvement is designed to reduce the strain which
" the shedding action tends to produce in the warps, and to
" diminish the wear of the heddles or healds. And in carrying
" it out according to one modification an eccentric or cam is fixed
" on the first motion or other suitable shaft, and acts on a vertical
" lever, a strap from which is attached to the frictional break
" rope, by which the delivery of the warps is regulated. The
" attachment is to the part of the brake rope between the fixed
" stud or hook to which the rope is attached and the warp beam,
" and on the shed being formed the eccentric or cam causes the
" lever to pull the rope so as to turn the beam in the direction to
" slack off the warps. When the shed is closing the eccentric or
" cam permits the warp beam to gradually resume its former
" position."

"The second improvement relates to the take-up mechanism,
" and consists in combining with a lever for lifting out of gear

" the propelling and retaining catches of the ratchet wheel, as " lever and catch so set between stops as to allow the ratchet " wheel to move back but only to an extent corresponding " to three picks, or whatever number of picks is considered " desirable."

"The third improvement consists of an arrangement by which, " in working cords or cross-overs, they may be driven closely up, " and this is obtained by means of a presser bar of at least the " width of the cloth, placed between the breast beam and take-up " roller, which presser bar, whilst the fine yarn between the cords " or cross-overs is being woven presses the cloth out from the reed, " but which whilst the cord or cross-over is being woven retires, " and throwing the warp into the reed causes the cords or cross-" overs to be driven more closely up."

[Printed, 8*d*. Drawing.]

A.D. 1863, December 21.—N° 3225.

EASTWOOD, James.—" Improvements in apparatus for forcing " size or other glutinous substances through pipes to supply " machines for sizing yarns, cloths, or other materials." "This " invention relates chiefly to the kind of apparatus called " 'Eastwood's' compound mixing apparatus, for which Letters " Patent were granted to William Pollitt and James Eastwood " the 22nd September 1855, No. 2125, for preparing size or other " glutinous substances, and consists in an improved mode of " returning the surplus size forced into the feed pipes supplying " machines for sizing purposes into the cavity or boiling pan in " the following manner :—

"The size is drawn from the boiling pan by a pump, and forced " by the same into a supply pipe which feeds the machines for " sizing purposes. As the quantity of size necessary is subject to " variation, and the pump continues to inject or force into the " supply pipe always the same quantity, it is necessary to provide " an outlet for the surplus. In the ordinary manner this is " effected by connecting a return pipe to the farthest extremity " of the supply pipe, which returns the surplus to the boiling " pan ; this mode necessitates a considerable length of piping, and " the size in its passage through is cooled."

The "improvements consist in fixing a short return pipe as " near as convenient to the force pump leading direct into the

" boiling pan, and placing a valve in this return pipe which is " kept closed by means of a weighted lever or spring which can " be so adjusted that when the pump injects more size than " required into the supply pipe, and consequently exerts an in- " creased pressure against the valve, the valve opens and allows " the surplus size to pass into the boiling pan; as soon as the " pressure is lessened the valve closes again.

" Instead of a valve an arrangement of pipes similar to the safety " pipes used in boilers may be used, a pipe, bent similar to a " syphon pipe and ascending higher than the level of the supply " pipe has a return pipe into the boiling pan, the supply pipe is " thus kept full by the pressure of the height of the column of size " above its level; any increase in supply would raise the column " of size in the ascension or syphon pipe, and when it arrived to " its highest point at the bend the surplus would fall down the " return pipe into the boiling pan."

The compound mixing apparatus above referred to is "for " churning milk and mixing liquid compounds," it is thus described by the patentees:—" We use a vessel of any convenient " shape, and fix a shaft across the top of it to revolve in suitable " bearings; on this shaft we fix two or more bevil wheels to work " into other wheels fixed on the top of vertical shafts inside the " vessel; on these vertical shafts we fix projecting beaters, so " that as the said horizontal shaft is turned by a handle or other " means, the vertical shafts and beaters are turned in opposite " directions by means of the wheels aforesaid, thus giving an " agitated motion to the milk or liquid. Instead of working the " said shafts from the top of the vessel, we can fix them at the " side, if desirable, and obtain the same results."

[Printed, 10*d*. Drawing.]

A.D. 1863, December 22.—N° 3241.

TURNER, Archibald.—This invention of "improvements in " looms for weaving relates to a novel mode of weaving without " the use of a shuttle for introducing the weft thread or shoot as " in ordinary looms."

The patentee claims,—" First, introducing the weft thread into " the shed by means of a reciprocating thread carrier, and securing the same in the shed by means of a securing thread passed " through the looped or doubled end of the weft thread by a shuttle " or other suitable instrument.

"Second, in combination with the reciprocating weft-thread " carrier," "the use of an adjustable clamping apparatus for " clamping or holding the thread, and also the use of the adjustable tension arm for measuring off the precise quantity of " thread required for the weft."

[Printed, 2*s*. 6*d*. Drawings.]

A.D. 1863, December 23.—N° 3255.

HOLLAND, WILLIAM.—(*Provisional protection only.*) — This invention "refers to a method of preventing the shuttle from flying off during the process of weaving." The inventor proposes to "apply a bracket or a series of brackets placed at intervals on " the lathe, and projecting at right angles therefrom, and by " which the shuttle is intercepted should it leave its proper " course."

[Printed, 4*d*. No Drawings.]

A.D. 1863, December 29.—N° 3291.

NAYLOR, MARY ANN, NAYLOR, THOMAS, and NAYLOR, JAMES WHITELEGG (executrix and executors of David Naylor). —This "invention relates, first, to looms having rising and falling " shuttle boxes, and consists in an improved mode of raising and " lowering the shuttle box frames." "A shaft is employed which " extends across the loom, and which when the loom is in operation receives continuous motion. In some cases it is more convenient to have a seperate shaft at each end. On this shaft are " four sliding cams, two near each end, which rotate with it, but " are free to slide on feather keys to and fro on it. These cams " are only formed to act as cams at one end; near the other end " they have grooves, and they have a tooth or notch formed on " their periphery. To each of the shuttle box frames are affixed " two bars, on which are notches or teeth. The cams and bars " are so placed that the notch of one of the cams will, when permitted, act on a notch of one of the bars to raise the frame, and " that the notch of the other cam will act on one of the notches " of the other bar to depress it. When the notches on the cams " as they rotate are not required to act on the notches of the bars, " each cam is held by a lever or latch in such a position that as " they rotate the notches will not come in contact, but when the " notch on any of the cams is required to act the latch is by the

" jacquard or other suitable apparatus withdrawn from such cam, " which allows a spring to act on and force it sideways into such " a position that as it rotates the notch on it will come in contact " with a notch on the bar, which will raise or lower it and the " shuttle box frame in accordance with the bar on which it acts. " When the notch on the cam has acted the cam at the end is so " formed that as it revolves it comes against a bowl mounted on " a stationary stud which overcomes the power of the spring and " causes the cam to slide back when it is held by the latch."

"The second part of the said improvement is applicable to " looms where one or more series of shuttle boxes is or are carried " by the lathe sword, and consists in attaching weights to the " lathe swords or to the rocking shafts of such looms, in order " to balance or counterpoise the lathes and shuttle boxes and " apparatus connected therewith."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1863, December 31.—N° 3304.

STARKEY, John, HAWORTH, John, and PHIPPIN, James Kay.—" Certain improvements in looms for weaving." The patentees say,—" Our invention relates, first, to that portion of the " loom called the taking-up motion, and consists in an arrange- " ment of self-acting mechanism for decreasing the rotation of the " cloth roller as the fabric accumulates thereupon. Such me- " chanism consists of the ordinary lever vibrating upon a fulcrum, " and having near the top the usual two or more pawls above " such fulcrum, which act upon the ordinary ratchet wheel driving " the cloth roller, in the lower end of the lever a vertical slot or " slide is formed, in which is a stud or sliding piece connected " with and receiving motion from the slay, the said stud being " attached by a band passing round a bowl on the framing to a " rod acting on the periphery of the cloth roller."

" A second part of the invention relates to an improved arrange- " ment of apparatus for driving the shuttle, termed the 'picking " 'motion,' which consists in the use of a disc wheel, which is " driven from the pinion on the crank shaft, and having on its " face a swell or incline, which strikes at every revolution a bowl " secured to a diagonal shaft, which is connected by means of a " strap to the 'picking stick,' and effects the sudden movement " of the picking stick and the propulsion of the shuttle.

"This 'picker and stick' for propelling the shuttle constitutes " a third part of the invention, and consists in facing or covering " the 'picking stick' with buffalo hide, india-rubber, or other " suitable material, the parallel action of the 'picking stick' being " obtained by a rod or guide in the shuttle box, which passes " through the stick, the forward concussion or driving motion of " the stick being modified by an elastic cushion at the end of the " shuttle box.

"The fourth part of the invention relates to the motion for " actuating the healds termed the heald or 'shedding motion', " and consists in the employment and use of an endless chain, " cord, or band partly encircling the peripheries of the cams or " eccentrics, to transmit the motion to the healds."

"Fifthly, our invention relates to that part of the loom known " as the 'weft motion,' for stopping the loom when the weft " breaks." "Upon the slay of the loom is hinged a bell-crank " lever, having its upper or vertical end hooked; this lever is " brought into a vertical position by means of an inclined plane " actuated by the 'swell' in the shuttle box; when in such " position is ready to act upon the bent end of the 'balanced " 'weft fork,' should the weft be disunited, which effects the " stoppage of the loom in the ordinary way, but if the weft be " entire the bent end of the 'fork' is lifted above the hooked " end of the bell crank, and the progress of the weaving is not " arrested.

"Lastly, our invention relates to the 'warp beam,' and is " designed to regulate the pressure thereupon, and consequently " the tension of the warp. The improvement consists in the use " of screws having toothed or star-wheel heads, into which a stud " or tooth on the 'warp beam' gears at each revolution, so as to " turn the screws and gradually lessen the pressure of the india-" rubber or bearings in which the warp beam is mounted as the " warp becomes unwound, or the said screw or screws may be " attached to a wedge or wedges, the withdrawal of which from " beneath an elastic bed upon which the beam bears will decrease " the pressure thereupon."

[Printed, 10*d* Drawing.]

A.D. 1863, December 31.—N° 3305.

***BELL,* Robert.**—" This invention relates to the manufacture of " *ornamental* fabrics to form a cheap substitute for a class of

" 'zebras,' or similar fabrics of woollen or worsted having parti-" colored patterns, usually of a bright or gaudy character, pro-" duced from threads of different colors by the comparatively " expensive process of jacquard weaving."

" In the substitute fabric manufactured according to this in-" vention the ornamental parti-colored pattern is produced by " printing, and for the purpose of receiving the printed pattern a " fabric is woven so as to present a surface of woollen or worsted, " whilst a suitable thickness and softness is obtained by a flushing " of cotton threads on the reverse side. The weaving is effected " with ordinary heddles or healds instead of the expensive jac-" quard apparatus, the flushing being regular instead of irregular " as in the jacquard woven fabric."

" By another modification there is woven by well-known loom " arrangements a double fabric, or a fabric consisting of two plies, " and a flushing of cotton is produced in the weaving between the " plies, such flushing giving the required thickness and softness, " and also serving to connect the two plies."

[Printed, 8*d*. Drawing.]

A.D. 1863, December 31.—Nº 3306.

CLEGG, Joseph.—This " invention relates principally to that " description of piled fabrics termed fustians or corduroys, but it " is applicable to other piled fabrics in which the pile is cut to " form ribs of short plush or 'nap,' and the improvement con-" sists in weaving the fabric in such a manner (by the ordinary " loom or machinery usually employed) that the weft employed to " form the loops or 'terry' may be taken into the 'back' or body " of the cloth at intervals, so that the regularity or sequence of " the loops may be 'broken' or divided so as to form squares of " pile when cut, instead of ribs. For instance, six or other num-" ber of 'picks' may be made into 'terry,' and the next four, or " six, or other number may be woven into the back, and so on, " which is to be effected by the action of the healds in the " ordinary manner."

[Printed, 10*d*. Drawing.]

1864.

A.D. 1864, January 1.—N° 1.

HOLDEN, John. — "Improvements in looms for weaving." The patentee says :—"First, I employ an arrangement of mechanism by which the weft motion is used in connection with the " wheeled shuttles. I dispense with the ordinary wide groove in " the shuttle board, and make only a narrow one, sufficient to " allow a lever to work in it, so that when the lever is down in " the said groove its upper edge is perfectly level with the shuttle " board, and thus allows the wheels to pass over freely, as " described in the Specification of an invention for which Letters " Patent were granted to me, dated March 16, 1861, No. 664. The " said lever is for the purpose of raising the weft thread in order " that it may act upon the fork, but instead of giving the lever " motion by its coming in contact with an inclined plane attached " to the breast beam, I give it motion by an inclined plane or projection on the lever, moved by a tappet on the tappet shaft for " working the ordinary hammer lever of the weft motion." "In " case of two or more shuttles being used I fix a pointer to the " fork holder or its fixture, so that as the lathe beats up it passes " over and depresses the weft threads that may be attached to the " shuttles in the drop boxes, and passes under and raises the " thread that is issuing from the shuttle in motion as it leaves " the shed, and thus allows the weft fork to act in the usual " manner.

"Secondly, I employ metal cards for weaving fancy goods," " the said metal plates to be perforated with the full number of " holes requisite for the size of machine. Into any number of " these holes, as the pattern may require to be filled up, I affix " metal blanks, removeable at pleasure."

"Thirdly, my improvements relate to self-acting temples having " a toothed bar in front of the toothed roller of the temple, for " giving a stretch to the fabric as it is woven, and which is " described in the Specification of my former Patent, before mentioned; but instead of giving it a horizontal sliding movement " only I give it a vertical and horizontal movement at the same " *time, for* enabling it after it has stretched the fabric to be re*leased from it,* there being a serrated bar or edge between the

“ roller, and serrated or toothed slide to hold the fabric and prevent
“ it being taken back with the backward movement of the
“ slide; and instead of allowing the temple to be moved onwards
“ simply by the onward motion of the fabric I hold it by friction
“ upon a shaft caused to revolve by a ratchet and ratchet wheel;”
“ or as another improvement in the self-acting temple I make an
“ endless chain of brass or other suitable metal, in which I fix a
“ requisite number of steel pins or teeth in an angle with the surface
“ of the chain, and of sufficient length to penetrate and hold
“ the cloth.”

“ Fourthly, I employ certain improvements connected with the
“ weft motion for adapting it to woollen or other wide looms. I
“ place the weft fork at the opposite end to the setting-on rod or
“ spring handle, and the rod which carries the fork is held in a
“ bracket working in or on a slide.”

“ Fifthly, I employ a break, covered at the end with an elastic
“ substance, intended to act upon the middle of the slay or lathe
“ near the bottom when the loom requires to be stopped.”

“ Sixthly, in the shedding motion for weaving fancy goods I
“ place two quadrangular slides in a vertical metal frame, one at
“ the top and the other at the bottom of the inside frame; these
“ two slides are connected together by a rod and lever working
“ on a pivot or stud moving the bottom slide downwards when
“ the top slide is lifted up, so that the two slides recede from each
“ other when a shed in the warp is to be formed, and approach
“ each other when the healds return to their level. Inside of
“ these quadrangular slides I place any practical number (say, to
“ twenty-four) of thin flat vertical slides with a hook or catch at
“ each end and an upright slit in the middle, through which
“ passes a round metal rod fastened to each side of the frame.
“ To the top and bottom of the hooked slides I attach the top
“ and bottom of each heald, either by cords passing over and
“ under guide pulleys to the top and bottom of the healds, or by
“ the usual means of jacks and treddles. To each hooked slide
“ I place a moveable pusher, which gives motion to the hooked
“ slide and pushes back the top of it, throwing the bottom forward,
“ thus detaching the hook from the top quadrangular
“ slide, and throwing the bottom of the hooked slide upon the
“ bottom quadrangular slide, so that when the quadrangular
“ slides are put in motion, the hooked slides being pushed back
“ take hold of the bottom quadrangular one, and raise the healds

"by the tops, the remainder taking hold of the top quadrangular "one and depressing those healds attached to them, and thus "form a perfect shed in the warp for the shuttle to pass "through."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1864, January 2.—N° 9.

BLAKEY, **John**, and **BLAKEY**, **Robert**.—(*Provisional proection only*.)—"Certain improvements in looms for weaving."

hese "improvements are designed for the purpose of causing "the warp or yarn when the shed is opening to 'set' equally, "that is, to cause the warp threads to become separated at even "distances from each other at every pick of the shuttle, thereby "effecting a more even, regular, and superior woven fabric.

"The improvements consist in the use of a bar or rod, situated "intermediately between the healds and yarn guide bar, and "passing underneath the warp threads, against which it is caused "to act through the medium of levers or arms to which it is "attached, having their fulcra upon the yarn guide bar. One of "these levers actuates the others by means of a cam secured "upon the crank shaft, which thereby imparts an oscillating "or vibrating motion to the aforesaid rod underneath the warp, "whereby the proper subdivision and regulation of the warp "threads is effected during the operation of weaving."

[Printed, 4*d*. No Drawings.]

A.D. 1864, January 4.—N° 19.

BULLOUGH, **James**.—The patentee says,—"The first part of "my invention relates to that description of sizing machines "known as the 'double sizing machine,' in which the yarn from "two sets of back beams is sized at once and wound upon two "weaver's beams simutaneously." "My improvements consist "in combining the doulbe machine and the slasher so as to form "a 'double slashing machine.' In one arrangement of [creel "having any number of back beams in one length I pass the "yarn alternately under and over each beam of the first set, and "conduct the compact sheet of yarn thus formed into the size "trough. also pass the yarn under and over each beam in the "second set or back set, and conduct the compact sheet thus

“ formed over guide rollers at a convenient distance above or
“ below the first set of beams, and then down or up as the case
“ may be into the size trough. Or I place one set of beams
“ above the other set so as to form what be termed a two story
“ creel, the upper story being placed at any convenient height.
“ Or it is balanced by weights so that it can be raised or lowered
“ as required. The yarn in each set passes under and over its
“ respective set of beams and passes over rollers into the size
“ trough. In order to reduce the number of beams, whether in
“ single or double sizing machines, I rebeam two or more beams
“ simultaneously on to one for the purpose of simplifying the
“ working of these beams as well as shortening the creel. To
“ accomplish this object I use a frame holding a series of back
“ beams, and also a large flanged beam at one end and give
“ revolving motion to all these beams by means of a lattice or
“ endless apron so as to give them uniform surface speed and
“ steadiness, the series of back beams increasing in the number
“ of revolutions in ratio with their decrease in diameter, and the
“ large flanged beam or re-beamed creel beam decreasing in its
“ number of revolutions in ratio with its increasing diameter.
“ Another arrangement of giving motion to the large flanged
“ beam is by means of a worm working in a worm wheel on
“ the winding-on shaft. Other gearing may be used provided it
“ secures the object of driving or allowing it to be driven steadily.
“ In large re-beaming machines I employ two frames which can
“ be fastened together or separated from each other, and place in
“ one frame the series of back beams and in the other frame the
“ large flanged beam, this latter frame being supported on wheels
“ so that it can be transported with facility to and from the
“ sizing machine or any other place. At every certain length of
“ yarn that is wound on the large flanged beam I insert a series
“ of opening bands for the purpose of facilitating the dividing or
“ opening of the yarn before it arrives at the weaver's beam.
“ The yarn itself in pulling off gives motion to these large
“ flanged beams when in the sizing machine, there being a break
“ which acts on the flanges or other part of the beams to overcome
“ their momentum when necessary. If the opening bands
“ before mentioned should not be noticed by the operator in
“ time to stop the sizing machine, it is evident much damage
“ would be done by their struggling to get through the opening
“ rods and wraith. In order to prevent this I apply a self-acting

" stopping motion consisting in a finger or suitable form of lever " which protrudes through the yarn so that the opening bands " shall act upon this finger before they can get to the opening " rods, and by a suitable mechanical connection the setting or " lever is acted upon and the machine stopped before any damage " can be done. My next improvement is for the purpose of " enabling lappers to be more easily detected. For this purpose " I make use of a number of small rollers covered with cloth or " other material having a darker shade than the yarn itself. " These rollers by revolving in contact with the beams, and being " supported by the sheet of yarn will seize any loose end which " might form into a lapper on the yarn beam and will lap it " round itself where it will be easily seen before it has gone " far."

" My next improvement is to regulate the speed of the friction " winder-on. This I accomplish by means of a pair of cone " drums or other mechanical equivalent whereby the speed of the " friction can be accommodated to the varying diameter of the " winding-on beam or beams in either single or double sizing " machines. I next employ two of more cone drums applicable " to either single or double sizing machines for the purpose of " dispensing wholly or partiallv with change wheels for marking " lengths of cut in the yarn. One of these cones is driven by " gearing from the measuring roller and drives the other by " means of a cord, strap, or other convenient means. The driven " cone gives motion to a shaft on which is a snail, and this snail " acts upon an upright at the top of which is a horizontal lever, " between which and the marking box is the sheet of yarn to be " marked. These cones are either smooth or are grooved con- " centrically. It is evident that by moving the band which drives " the cone to the right or left of the centre the cone will revolve " quicker or slower, and so cause the shaft with the snail fixed to " it to revolve quicker or slower, and as every revolution of the " snail by acting on the upright gives a mark, it is evident these " marks may be made to recur more or less frequently in a given " time, thus marking short or long lengths according to the " position of the driving band. In the double sizing machine I " also have two immersion rollers, that is, one for each sheet of " yarn or series of beams. These rollers are placed at different " depths in the size for keeping the sheets of yarns apart until " they have passed through the size trough, so that the two

" sheets of yarn will separate more easily on the way to their " respective weaver's beams."

[Printed, 2*s*. Drawings.]

A.D. 1864, January 11.—N° 65.

WEBSTER, JOHN. — (*Provisional protection only.*) — "This invention relates to means of forming the selvedges or edges of " fabrics when weaving two or more pieces of fabrics side by side " in the same loom; and the improvements consist in the application of instruments which are actuated by the movement of " the loom to cut the weft thread or threads betwixt the two " fabrics, and to draw or push the ends into the next shed, " one end into each piece respectively, consequently forming " a loop of each thread of weft around the edging threads of " the warp, each of the ends being turned into and secured in the " fabric."

[Printed, 4*d*. No Drawings.]

A.D. 1864, January 12.—N° 80. (* *)

CLARK, WILLIAM—(*A communication from Hubert Dupré.*)—(*Provisional protection only.*)—" Improvements in the means of " obtaining or preparing fibrous material from vegetable matters." This material is termed by the inventor " vegetable silk." The fibres obtained in certain cases are of " sufficient strength to serve " for the manufacture of all kinds of fabrics." The process " consists, 1st, in subjecting all kinds of stalks or branches, whether " green or dry, to a boiling process in slightly acidulated water, " for the purpose of more easily detecting the bark or skin, which " is effected by beating or friction in plenty of water; 2ndly, in " dissolving the glutinous matter by a second boiling with the " with the aid of a caustic solution, so as to complete the disagregation of the ligneous fibres therefrom; lastly, in heating these " fibres with the addition of soap, in order at the same time that " strengthens them to impart the requisite softness and brilliancy " when dried."

[Printed, 4*d*. No Drawings.]

A.D. 1864, January 12.—N° 84.

LITTLE, CHARLES.—(*Provisional protection only.*)—" The im " provements relate, first, to means for giving motion to rotary "shuttle boxes. The series of boxes is capable of revolving in "either direction, as operated by either of a pair of catches, "which are attached to and so as to turn on pins, or studs "carried by a frame operated by an eccentric on the crank shaft." "The selection of the catches for the order or direction of turning "is by a jacquard or pattern surface."

"This part of the invention also relates to an improved stripping "motion for circular boxes, which is effected as follows:—A bevil "or mitre wheel is fixed to any convenient part of the crank or "tappet shaft of the loom, and gearing into a corresponding "wheel on a shaft extending to the going part, the said shaft "sliding longitudinally in the boss of the bevil wheel supported "by the going part, so as to allow for the reciprocating motion "of the going part, or by fixing a pair of bevil wheels in connection with the tappet shaft, and driving by means of a cross "shaft to the swing rail of the loom an upright shaft carried by "the sword, having a pair of bevil or mitre wheels at the top "gearing with the horizontal shaft or spindle herein-after described. The latter bevil wheel above referred to gears into a "corresponding wheel fastened to a horizontal shaft or spindle "running along the going part to the circular box, with which it "is connected by a reversing motion similar to that used for slide "lathes, a pinion being fixed to the spindle of the circular box, "which may be driven either backward or forward, according as "the lever of the reversing motion is lifted up or down."

"The improvements relate, secondly, to a system of balancing "the reciprocating parts of looms, viz., the going part and swords, "and crank arms, by placing counterbalancing weights on the fly "wheel, pulleys, and cranks."

[Printed, 4d. No Drawings.]

A.D. 1864, January 14.—N° 103.

CONNELL, James.—(*Provisional protection only.*)—This invention has for its object the ornamenting of elastic fabrics used for braces, belts, gaiters, boot sides, and other similar purposes. It is proposed to use the jacquard to make the design; "the elastic "is worked with the jacquard so as to be covered by the other "threads; any number of shuttles or colours can be used. To "make the pattern double side cards are used on which the

" designs are draughted and punched, which cards are worked " with the jacquard."

[Printed, 4*d.* No Drawings.]

A.D. 1864, January 15.—N° 117. (* *)

ELLIS, James, and SLADDIN, Joseph.—" Improvements in " machinery or apparatus for the manufacture of healds."

The patentees say, " we employ in combination with parts of " machinery heretofore employed in such manufacture a needle " having two eyes for the two threads of yarn to pass, one " through each eye respectively, from the supply bobbins, to be " thence conducted by the hookers or openers to the lappers, " which secure them to the rig bands. The bobbins for the " lappers we make without pivots, and allow them to rotate on " their flanges in suitable frames, so as to occupy less space, and " thereby to avoid slack in the yarns. The noozes are formed by " means of a crook fixed on the end of a horizontal spindle, which " is placed at right angles to the needle, and is capable of turning " a suitable distance on its axes, so as to take hold of the yarn " and wind it around a pair of fingers, which project from the top " end of an upright spindle in line with the horizontal case. The " upright spindle then turns upon its axis one-fourth of a revolution, so as to place the fingers in line with and opposite to the " point of the needle. A horizontal bar is placed in line with the " needle, and capable of sliding endwise, on the end of this " bar is a pusher, or an instrument which takes hold on the noose " which has been formed on the fingers, and as the bar is caused " to move forward pushes or carries it on to the needle beyond " the eyes thereof, so as to allow the hookers to take hold on the " yarn passing through the eyes, and conduct the same to the " lappers. A fork then drops in betwixt the yarns on each side of " the noose, and which sets and holds the noose in its proper size " and position until the yarn is again drawn out to the lappers."

The details of the invention are minutely described, and include a " portable clasp for holding any length of needle," and certain guide eyes for conducting the yarn to the needle."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1864, January 21.—N° 165.

BURCH, Joseph, and FEARNLEY, Samuel.—The first part of this invention " relates to improvements in those parts of the

" mechanism of power looms in use for weaving terry and cut " pile fabrics which comprise and are known as the wire motion." These parts " include a guide rail, a slide with slanting stop and " friction spring, a lever for giving transverse action to the wire " head, and a supporting lever with wire rest. One end of the " guide rail is fixed to the side of the loom in a line with the " table; its other end is supported in an upright bracket attached " to the outer framework of the loom. The slide is mounted " upon the guide rail, and by means of a connecting rod and " levers it is, by the action of a cam upon the cam shaft, made to " traverse to and fro upon the guide rail each time before starting " on its outward motion, catching hold of a wire head, and withdrawing a wire from the face of the fabric, and by its returning " action re-inserting the wire in the shed then open to receive it, " as in the ordinary mode of weaving terry and cut pile fabrics. " After the wire is withdrawn, and before the slide commences its " inward motion, a transverse action is given to the wire head " upon the slide by means of a lever, which forces it across the " slide against the slanting stop, which is fixed upon the face of " the slide at such an angle that when the wire head is pressed " against it the other end or point of the wire shall be moved " upon the rest of the supporting lever in the direction of the " open shed, into which it is then driven by the returning action " of the slide."

The second part of this invention relates to letting-off and taking-up motions of looms. The patentees say :—" The novelty " of this part of our invention consists in the use of two discs, " fixed face to face a certain distance apart upon a shaft, which " we cause to rotate by means of two friction bowls, one of such " bowls, which we call the driving bowl, being in contact with " the face of one disc, and the other, which we call the intermediate bowl, being in contact with the other disc, both bowls " being in periphery contact with each other. The driving bowl " is fixed on the end of the driving shaft, which is mounted upon " a transverse slide placed between the radii of the discs at right " angles with the disc shaft, the centre of the driving bowl shaft " being in the radial line of the discs. The intermediate bowl is " fixed on the end of a short shaft, also on the radial line of the " discs, but not on the same plane or level with the driving bowl " shaft. The space between the faces of the discs must be something less than the diameter of the two bowls, in order that the

" intermediate bowl may act as a revolving wedge between the " driving friction bowl and the face of the disc with which it is in " contact. The intermediate bowl shaft works in a link or swing " frame, which centres on the driving bowl shaft, by which means " it has liberty to move concentrically therewith. Attached to " the transverse slide by a connecting rod and lever or by other " convenient and suitable means, according to the situation of " the relative parts in the machine, and in a manner to move the " friction bowls to or from the centre of the discs, we have a " weight, roller, or block, which we place upon or against the " surface of the material, which is either being 'let off' or " 'taken up' upon the ordinary beam, the speed of which is " governed and regulated by the increasing or diminishing speed " of the disc shaft with which it is, either by a shaft and bevel " wheels or other convenient contrivance, in constant connection, " while the speed of the disc shaft is regulated by the position of " the transverse slide, which governs the distance the friction " bowls are working from the centres on the radii of the " discs."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1864, January 21.—N° 166.

HEPTONSTALL, Charles, and LUNN, William.—" Im- " provements in the manufacture of stays." The patentees say: —" This invention relates to stays for the human body, and to " that kind which are woven whole or in one piece, and without " seam, to the shape or form required. Heretofore in the weaving " of such fabrics party-coloured or mixture yarns, or what are " technically called 'grandrell yarns,' also printed yarns, have " been used for producing variety of effect thereto.

" Now our improvements consist in the employment of single- " coloured yarns for the weft, and mixing two or more different " colours of yarns or ends in the warp, or in arranging different " colours of ends or threads alternately side by side, or in any " other desirable order, so that by the aid of jacquard or other " figure-producing apparatus we are enabled to effect a variety of " designs or figures in different colours on such fabrics."

[Printed, 4*d*. No Drawings.]

A.D. 1864, January 26.—N° 221.

COMBE, John, and SMALPAGE, John Henry.—" Improve- " ments in the action and arrangement of power looms, and in

" the transmission of motion to power looms and other machines." This invention consists, " firstly, in carrying the stop rod of " power looms in two bearings attached to the frame sides, so " that two fingers projecting from the stop rod are acted upon " and raised by the shuttle going home in the box, and so that " when the shuttle is interrupted in its passage the fingers projecting from the stop rod will descend so far as to cause a pair " of hook catches, also attached to the stop rod, to drop on to a " pair of steel edges projecting from the fly wheels, by which the " hook catches being jerked forward will simultaneously brake " the fly wheels and throw the loom out of gear.

" Secondly, in throwing the shuttle by means of a short picking stick vibrating on a stud carried by the sword, the top end " of the picking stick being fastened to a strap of stiff leather, to " the other end of which strap three or four thicknesses of untanned hide are securely rivetted to form the picker, which " slides freely between two slips of iron or brass which form the " bottom of the shuttle box, motion being communicated to the " picking stick by means of a strap attached to a cross arm projecting at right angles from the picking stick, and vibrating on " the stud carried by the sword, the lower end of such strap being " connected to a bell crank carrying a conical runner acted on by " a wiper, so that by varying the point of action of the wiper on " the conical runner the power of the pick may be increased or " diminished.

" Thirdly, in actuating the shafts or heddles of power looms by " means of two revolving runners carried by two arms fixed on " the lower shaft of the loom, acting alternately on the upper and " lower portion of circular rims cast on two rocking shafts placed " one at each end of the loom, each rocking shaft having two " arms projecting from it in opposite directions in the plane of " the shafts or heddles, the ends of which projecting arms are " linked respectively to two cross bars, which are thus caused to " rise and fall alternately by the continuous rotation of the " revolving runners, the ends of these cross bars being connected " respectively with pairs of upright rods or tubes, which slide in " sockets fixed to the frame side of the loom, and the top ends of " which rods or tubes are bent over and inwards in a horizontal " direction, so that each shaft or heddle is carried and actuated " independently by being stretched by adjusting screws between " the cross bar and the horizontal ends of the two bent rods or " *tubes to which* it respectively belongs.

" Fourthly, in stretching the warp in power looms between two " rocking frames extended at the top by two spiral springs or two " weights, and so connected with the warp beam and the cloth " beam respectively that the pulling in of the rocking frame carrying the warp beam or the letting out of the rocking frame " carrying the cloth beam by the action of the loom in weaving, " and against and in compliance with the pull of their respective " spiral springs or weights causes a worm and worm wheel by " which the warp beam and cloth beam are respectively retained " to let off the warp and to take up the cloth by bringing the " ratchet wheels which actuate the respective worms under the " action of two spring catches projecting from the two ends of a " cross shaft carried in two sockets within the frame side of the " loom, to which cross shaft an alternate rocking motion is given " by the rising and falling of one of the connecting rods of the " loom by means of a link with two universal joints communicating motion from the connecting rod to an arm projecting " from the cross shaft.

" Fifthly, in stretching the cloth in power looms immediately in " front of the reed to the proper width by nipping the selvages " between thumb plates extending a little under the cloth, and " elastic rollers extending a little over the cloth, set at an angle " and retained by ratchet wheels, so as to maintain the cloth at " the stretch laterally by leading out the selvages, and longitudinally by retaining what the forward movement of the reed " delivers.

" Sixthly, in transmitting motion to power looms and other " machines by means of two compressible leather-covered rollers " confined between two discs fixed on the crank shaft of the " loom, so that motion communicated to one of these rollers will " be transmitted by the reversing effect of the second roller in the " same direction to the rims of the two discs between which the " driving roller and the intermediate roller are confined, and the " intermediate roller being mounted on a stud carried by a moveable lever acted on by a spring or weight and retained by a " catch, the stopping of the loom by the shuttle failing to get " home in the box is made to throw out the catch, so that the " reaction of the spring or weight on the moveable lever will " cause it to throw the intermediate roller out of contact with the " driving roller."

[Printed, 1*s*. Drawing.]

A.D. 1864, January 26.—N° 222.

NORTON, WALTER.—"This invention has for its object im-"provements in weaving cut pile fabrics, and is peculiarly applic-"able in the production of piled checks or plaids, and is also "applicable when weaving other fabrics, and consists in producing "the cut pile of the fabrics from the combined flushings of the "pile warps and the pile wefts of the fabrics. For these pur-"poses a pile warp, as well as a ground or back warp, is employed, "as when weaving plushes and like fabrics, produced by cutting "the flushings of the pile warps, and in addition to the pile and "back warp two wefts are used, one for weaving the back or "ground of a fabric, and the other (the color of which is from "time to time changed) for producing the pile by being flushed "over the ground or back warps, so that the pile of each fabric "will be compossed of the cut flushings of the pile warps and the "pile weft threads or yarns."

[Printed, 6*d*. Drawing.]

A.D. 1864, January 29.—N° 246.

KERSHAW, JABEZ.—(*Provisional protection only.*)—"Improve-"ments in the take-up apparatus employed in weaving." "These "improvements relate to means for effecting a uniform winding on "of the cloth on to the work roller or beam, and for mechanism "effecting a decreasing rotary motion to such roller or beam in "proportion as such roller or beam is increased in diameter by "the winding of cloth thereon."

The inventor describes geometrical figures devised for the purpose of arriving at the radii of certain "compensating levers" hereafter mentioned. "Upon the tappet or other suitable shaft "are keyed the cams or eccentrics for giving vibratory motion "to the compensating levers; these compensating levers have "their fulcrum upon a stud made fast to the loom frame at a "proportionate radii, as already described; these levers are con-"nected by means of studs and connecting rods to the excentrics "and they are formed with circular slots in which the studs may, "as the diameter requires, rise or fall freely. The radii of these "circular slots, in order to secure parallelism of action, are as the "length of the connecting rods from the excentrics. Upon the "upper extremity of these compensating levers are attached by

" means of pins other connecting rods, the other extremity of " which are attached to the lower extremities of other levers " having their fulcrum upon a stud in the main framing of the " loom. To each of these levers and at equal distances from the " fulcrum are fixed loosely by means of pins the pawls or catches " which act upon to give motion to the ratchet wheel, and after- " wards, through the ordinary train of change wheels and pinions. " to the roller or beam on which the cloth is to be wound. Upon " the periphery of the roller or beam, or upon the surface of the " cloth when in the act of being woven and wound thereon, and " guided by a bracket placed on each side of the loom rests a " rod ; this rod as the cloth is wound on to the beam is raised at " each succeeding layer, and by means of connecting links the " studs in the circular slots of the compensating levers are also " raised; by this means the amount of motion imparted to the " ratchet wheel, and through the medium of the change wheels " and pinions to the work roller or beam, may be varied in pro- " portion according as such studs ars raised or depressed by the " action of the cloth in the circular slots of the compensating " levers."

[Printed, 6*d*. Drawing.]

A.D. 1864, February 2.—N° 272.

CLEGG, Joseph, SMITH, John, and CARNELLEY, William.—This invention " relates to the weaving of a description of " goods called 'diagonals' and 'twills,' in which a 'twill' or " 'diagonal' surface is imparted to them by an ordinary and well- " known arrangement of the warp and weft whilst weaving."

The "invention is designed to produce an improved and more " regular appearance on the twilled surface of the cloth, and con- " sists in a pecuiar arrangement or intersection of the warp and " weft, which is to be produced by the action of the healds as " usual, and is as follows :—First, a 'ground pick' is made (that " is equal warp and weft), next a 'surface pick,' which forms a " twill, then another 'surface pick,' which forms a second twill, " but so close as to appear but one, then another 'ground pick' " is made, and so on."

[Printed, 8*d*. Drawing.]

A.D. 1864, February 5.—N° 303.

DICKINSON, John Charles.—" Improvements in the drying " cylinders or machinery or apparatus employed for sizing and

" drying yarn." In constructing drying cylinders according to this invention, it is proposed to employ "a hollow cast-iron shaft " or pipe of the length of the drying cylinder required, and pro- " vided at each end with a flange of suitable diameter; to the " outer face of each flange the plate forming each end of the " cylinder is secured by bolts or other means, suitable buckets " and pipes for the discharge of the condensed steam are arranged, " and the case or shell of the cylinder is fixed to the outer edges " of the end plates as usual."

[Printed, 8*d*. Drawing.]

A.D. 1864, February 6.—N° 323.

MULLONEY, SAMUEL WHITEHALL, and JOHNSON, GEORGE.—(*Provisional protection only.*)—This invention relates to frillings used as trimmings for ladies' undergarments and other similar purposes. The inventors say, "We propose to manufac- " ture these frillings completely, drawn up and plaited or goffered " ready for immediate attachment to garments, and this we " accomplish by taking the straight strips of muslin, cambric, " linen, or other suitable fabric woven with one or more fast " edges, and by means of a drawing thread or threads we gather " up or plait the material into a frill, and we then fix it in that " form by removing it to a sewing machine, by which the frills " are stitched at or near the gathers."

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 10.—N° 350.

CARNELLEY, WILLIAM.—(*Provisional protection only.*)—This invention "relates to the manufacture or weaving of that descrip- " tion of looped and 'cut pile' fabrics wherein the weft is caused " to 'float' over the warp to form the loop." The invention " consists in the use of one portion of yarn (say half) composed " of silk, and the remaining portion of cotton or other fibrous " material inferior to silk, for making the aforesaid loops or to " form the pile when cut."

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 12.—N° 378.

NORTON, WALTER.—(*Provisional protection only.*)—"This " invention has for its object improvements in power looms,

" whereby varieties of patterns and changes of fabric may be " woven in the same piece without the aid of a jacquard." "To " enable a power loom to produce these results when two kinds " of weaving (say plain and twill) are required, as many leaves of " heddles (say 4) are required as if for weaving the twill only; " and if three kinds of weaving are desired to be produced in succession, say, plain, twill, and satin, or other kinds of weaving, " more leaves of heddles would be used, according to the number " required for the satin or other kinds of weaving." "When only " two kinds of weaving are required, there are attached to each " heald two sets of cords in place of one, so arranged that when " one cord is at work the other is slack or dormant; and if three " different kinds of weaving are to be produced, three cords are " attached to each leaf of healds, and two of them will remain " dormant whilst one is at work, and so on, as the case may be. " When weaving plain and twill six tappets are used, and are so " arranged that when two of the tappets are in work for producing " plain or tabby weaving the four tappets for weaving twill, " although rotating, do not act on the harness, because they are " disconnected with the jacks that lift the leaves of heddles, and " vice versa." The tappets are thrown in or out of gear with the jacks by means of a drum with projections on it, and this drum is turned round in either direction by catches attached to a vertical rod, which is moved up and down by a cam and is under the control of the weaver.

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 23.—N° 453.

HOWARD, John, BULLOUGH, John, and WATSON, Thomas.—The patentees say,—" Our invention consists in certain " improvements in self-stopping beaming machines, and is a further " development of the plans patented by Howard and Bullough, " and dated respectively July 4th 1862, N° 1948, and January " 5th, 1863, N° 34.

" In those inventions we used a number of pins working in " sheaths, guides, or sockets, and each pin was suspended by a " thread, when the said thread was entire and brought to a state " of tension by the working of the machine; but so soon as a " thread was broken the pin which it held suspended fell down

" and put in action a current of electricity or stopped a vibrating " bar and caused the machine to stop."

"In our present invention we dispense with the above-men- " tioned sheaths, guides, or sockets, and also with the material " into which they are embedded, or of which they form part, and " retain only a frame. We form this pin frame of one or more " pieces of iron or other suitable material which stretch from side " to side of the machine. If formed of one piece, we cut a slot " or slots, according to the number of rows of pins. If of more " than one piece, we plane the edges and fit them together so " that the planed edges leave a slot or nick sufficiently wide to " admit the stems of the pins. In these slots or nicks the pins " are inserted, which are made by preference of round wire. The " heads of the pins are made of two coils of wire so that when " the pin falls the head will not pass through the slot. Or in " making the pins after the eye is formed we twist one coil of " wire round its under side, which forms a collar to prevent the " pin falling too far. Thus it will be seen that the pin frame, " though non-expansive in itself, allows the pins to move vertically " and laterally with the threads. In combination with this novel " pin frame we use a common expanding comb between the dents " of which the threads pass after leaving the eyes of the pins. " Now as this comb is expanded or contracted the threads " approach or recede from each other, and as the pins are not " restrained laterally they accommodate themselves to the shifting " position of the threads as the comb is expanded or contracted."

" Our next improvement is in the form of the stop bars which " stretch across above the tops of the pins to prevent them from " being pulled or plucked out of the slots. We formerly made " these bars flat on the under side, and allowed the eyes of the " pins to be pressed against them by the tension of the threads. " We now hollow the bars on the under side so that the eyes of " the pins cannot be pressed against the bars, the sides or " edges of the bars being made to bear the upward stress of the " threads.

" Our next improvement has reference to the friction motion " by which we drive the machine." " We have the friction disc " which is fastened to the drum shaft made to slide in and out " of gear by the action of the setting on rod with a pulley " working loosely on the same shaft, which pulley is always " revolving, being driven by the strap. And we place another

" pulley on the other side of this, also loose on the shaft. Now " if the whole of the strap is on the middle or driving pulley " when the friction disc is put in gear it will drive the machine " with the full power of the strap, but if only half the breadth of " the strap is on the driving pulley, and the other half on the " pulley which is not in connection with the friction disc, the " machine will only be driven by half the breadth of the strap. " We therefore have these pulleys so arranged with a strap fork " worked by a quadrant and rack screw, or other similar con- " trivance, that the warper can adjust the strap at pleasure so as " to drive the machine quicker or slower.

" Lastly, we combine these improvements or a part of them " with the falling rod machine, so as to get a machine which " shall have the self-stopping qualities of the one and the facility " for reversing the machine, to find the broken end, of the " other."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1864, February 23.—N° 456.

DELANNOY, Henri Parent.—(*Provisional protection only*). " Improvements in power looms." In the drawing attached to the provisional Specification the inventor shows a plan of part of a power loom with a jacquard machine. The improvements consist in placing above the "lifting wires" two rollers united by a strap; the rollers "receive rotatory movement in opposite " directions and alternately by means of a driving band." The rollers give motion, by means of bands, to two plates, which act on projections on the lifting wires, " so that these latter are brought " to their resting point at each movement of the plates. The " lifting wires placed in the lower part of the loom are like the " upper ones provided with projections, and are worked in a " similar way by a system of rollers, plates, and straps moved by " an excentric."

[Printed, 6*d*. Drawing.]

A.D. 1864, February 24.—N° 459.

TONGE, Richard.—(*Provisional protection only*.)—" Certain " improvements in looms for weaving." The first part of this invention consists "in the application of a screw for changing " the position of the shuttle box or boxes, which may be either

" the usual drop boxes or circular boxes, or other shaped boxes " with several compartments, so as to bring any required shuttle " in line with the shuttle race."

The second part "consists in an improved mode of governing " the number or succession of picks from each side of the loom; " the ordinary picking bowls are hinged to levers, acted upon by " the usual cams or wipers; these hinged levers are connected to " the pattern chain for governing the position of the drop box or " any other apparatus for governing the shedding of the warp. " When a pick is required the hinged lever remains straight, and " when a pick is not required the lever is bent by the pattern chain " or other apparatus above referred to, so as to move the bowl " beyond the reach of the wiper, or vice versâ.

[Printed, 4*d*. No Drawings.]

A.D. 1864, Februuary 24.—N° 464.

RATCLIFFE, Edwin, and PEARSON, John.—(*Provisional protection only.*)—"This invention relates to the manufacture of " 'temples' by self-acting machinery, whereby the 'rasps' or " projecting points upon such temples are raised and set in a " uniform and regular position.

"The improved machinery consists in a suitable bed or frame " upon which supports or carriers are placed to hold the piece of " metal or 'blank roller' of which the temple is formed, whilst " the surface is under the operation of being roughened or cut. " This cutting is accomplished by means of a sliding tool having " pressure exerted upon it by a bent lever which has its fulcrum " in the frame supporting the cutter, such frame being adjustable " to any required angle, so that when pressure is applied to the " cutter through the aforesaid lever a projecting point or rasp is " raised upon the 'blank roller' ready for finishing, which is " effected by a projecting piece upon the pressure lever when " being raised (preparatory to its downward action) coming into " contact with a sliding 'setter' in the form of a punch with a " countersunk die, which being forced down upon the already " roughly-raised point will form and set such rough projections " or points into perfectly-shaped pins. The projecting points " upon the surface of the temple are raised at equal distances by " means of a diagonal wheel which gives an intermittent pro-

" gressive motion to the blank roller during the formation of its " roughened surface."

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 25.—N° 475.

NEWTON, William Edward.—(*A communication from Oliver Rogers Burnham.*)—" This invention consists in the construction " of skirt hoops, each of two or more narrow strips of steel or " other metal, arranged edge to edge, and united so as to form " one band or hoop by braiding or weaving them together with " cotton or other fibrous material.

" It also consists in the combination in a skirt of a series of " hoops, such as those above-mentioned, with a series of suspending straps or tapes woven double in the portions where the " hoops are connected, and single between those portions, and " having the hoops inserted through the double portions.

" A series of metallic clasps are also made to pass through the " hoops, as well as through the tapes or straps, for the purpose of " securing the several parts together."

[Printed, 6*d*. Drawing.]

A.D. 1864, March 1.—N° 511.

NEWTON, William Edward.—(*A communication from Jean Luc Hock.*)—(*Provisional protection only.*)—" The improvements " which form the subject of the present invention relate to the " manufacture of velvet, ribbons, or fabrics of different widths, " and consist in the employment for that purpose of raw or " undressed and undyed substances, such as raw or floss silk and " cotton, instead of using for that purpose fibrous substances " previously dyed, as is ordinarily practised. By this means " ribbons may be produced which may be afterwards dyed of any " desired color."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 1.—N° 515.

HUGHES, Edward Thomas.—(*A communication from William Randal Harris.*) — " Improvements in the manufacture of " weavers' harness."

The first improvement consists in weaving healds " by mounting the twines in an ordinary loom in the same manner as the

" usual warp. The weaver first throws a few picks, and then " inserts a staff parallel with such picks, and which he secures in " this position by a few passes of the shuttle; the heald is then " advanced a distance corresponding with the shed; the weaver " again throws a few more picks, inserts a second staff, which he " secures like the former; he will thus have completed one heald, " and by a repetition of these operations he will convert the entire " warp into healds fit for receiving the eyes or other analogous " attachments." "In order to prevent the unravelling of the " weft when the piece is cut into healds," "it can be previously " washed with a gummy or mucilaginous solution, and if " requisite further secured by lines of stitching."

The second improvement "has reference to a heald formed of a " single heald twine running from staff to staff, and consolidated " at its extremities by means of a foundation cord."

"The third improvement consists in the formation of the " requisite eye for the passage of the warp thread, either by " means of a flexible thread attached to a single twine, or by " uniting two twines in such a manner as to leave the required " space between the two said twines."

"The fourth improvement consists in the use of metallic, glass, " or porcelain eyes attached to a single thread by insertion either " between the strands of a round twine, or through tape or braid " as the case may be."

"The fifth improvement consists in the formation of a metallic " eye united to a round twine by pressure only."

"The sixth improvement has reference to a heald formed of a " single heald twine running from staff to staff," and held fast at its extremities by being placed between two pieces of tape or strips of paper which are afterwards united "by means of glue or " by stitching."

[Printed, 10*d*. Drawing.]

A.D. 1864, March 3.—N° 531.

WILKINSON, WILLIAM.—(*Provisional protection only.*)—" Im" provements in sizing cotton and other warps or threads." The objects of the invention are, "firstly, to dispense with the con" densed water present in the size by the ordinary method of " *blowing* steam into it during the operation of sizing cotton and " *other* warps or threads."

"And, secondly, to economize the quantity of steam requisite to keep the size in a fit state for operating upon the cotton or other warps or threads." Within the cistern containing the size the inventor places a "box, or, if preferred, a false bottom furnished with apertures for the ingress and egress of steam, such ingress apertures communicating with an ordinary steam boiler. The egress apertures communicate with the outer air."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 5.—N° 558.

MILLIGAN, WALTER, and DUTY, BIRKETT.—(*Provisional protection only.*)—"Improvements in means or apparatus employed in weaving." "The improvements relate, when employing series of shuttle boxes or shuttle chambers to means by which a skipping of two or more of such boxes or chambers may be readily effected from one to any other of the series of shuttles to bring them in a line with the lay, and the improvements are particularly applicable to what are called revolving or rotary shuttle boxes. For this purpose the lever or lifting means employed to operate the parts for giving motion to the series of boxes or shuttle chambers in either direction is capable of being lifted to the extra extent desired by another lever or lifting means which is capable of being slided sideways to the extent desired so as to be acted upon by tappet surfaces for the amount of extra motion required to the boxes."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 5.—N° 560.

BROOMAN, RICHARD ARCHIBALD. — (*A communication from François Vouillon.*)—(*Provisional protection only.*)—"This invention consists in the manufacture of a double cloth or fabric, one side or face of which is woven with felted woollen threads, and the other side or face with any suitable material, so that the fabric may without being fulled be made up into garments and other articles, one side of the fabric forming the body, and the other side the lining of the article."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 9.—N° 581.

LANIEL, LOUIS ALEXANDRE.—(*Provisional protection only.*)—"This improvement consists in the addition of glycerine to the

" solutions of mucilaginous matters or 'weavers' starches' em-
" ployed in the dressing of linen, hemp, and certain other yarns
" of vegetable origin preparatory to their being woven."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 12.—N° 626.

LAWSON, John, and LAWSON, John, junior.—(*Provisional protection only.*)—" This invention relates to improvements in
" weaving, and in apparatus therefor, suitable for various kinds
" of fabrics, and in particular for narrow fabrics, or for thick
" fabrics.

" In carrying out one modification no shuttle is used, but there
" are two wefts, which are drawn off bobbins, one at each side,
" and which are passed through eyes in needles or carriers. The
" warps are shed in any common way, and into each shed both
" weft carriers are passed from opposite sides, and then withdrawn;
" loops of wefts are thereby laid in the shed in opposite directions,
" the ends of these loops being caught by pins made to enter them
" either at, beyond, or within the selvage on the opposite sides
" respectively from those from which the loops are introduced."

" In other modifications more than two wefts are used, being
" introduced into different sheds, which sheds may be either suc-
" cessive, or, as in the case of thick fabrics, simultaneous; but it
" is in most cases preferred to insert in each shed at least two
" loops from opposite sides. In the case of thick fabrics, such as
" carpets and the like, and where, for example, the object is to
" give thickness to the backing, one or more wefts introduced by
" a weft carrier may be employed in combination with one or more
" wefts introduced by a shuttle or shuttles, firm selvages being
" secured by such shuttle or shuttles."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 14.—N° 639.

PARKINSON, Thomas, TAYLOR, Francis, and BURTON, Thomas. — " Improvements in machinery and apparatus for
" sizing, dressing, dyeing, and drying."

The first part of the invention consists in applying to the vessel containing the size or other liquid one or more revolving *cylinders heated* by steam. " Agitators may be applied to the
" *axle of the* revolving cylinder."

The second part of the invention relates to apparatus for boiling size, " in which pumps are used for discharging the size from the " boiling apparatus through pipes to the size box of the sizing " machine;" "and it consists in the application of a three-way " cock or other cocks fixed at suitable places in the range of pipes " for conveying the size from the boiling apparatus to the size " boxes, and back again, when required, to the boiling apparatus, " thus keeping the full pressure of the pump upon the size as it " is delivered into the size box."

The third part of the invention " consists in the application of " two or more rollers or rods placed immediately over the back " beam of the present sizing machines, and at any suitable " distance from the size box; the upper circumference of each of " the said rollers or rods is a little higher than the preceding " roller or rod as they recede from the size box, so that the " yarns from each of the back beams can pass over the aforesaid " rollers or rods without coming in contact as at present." A wraith is arranged so " as to slide freely on suitable bearings to " or from the size box; the said wraith is connected by suitable " mechanism to the strap guide or knocker-off, so that when the " wraith is pressed forward by crossed ends or other obstructions " of the yarns it is made to act upon the strap guide or knocker-" off, by which means the strap is conveyed from the fast to the " loose pulley, and the machine is stopped."

The " improvements in sizing machines consist also in the " application of two rollers as a substitute for the three rollers at " present in use for guiding the yarn on leaving the drying " cylinder; the diameter of the roller for propelling the yarn is " reduced and the speed increased," by this means the patentees " are enabled to raise the blowing fan to the most convenient " height or place for conveying the current of air towards the " drying cylinder and the yarn to be dried."

The last part of the invention " is applicable to the journals of " steam-heated cylinders employed in machinery for sizing, dress-" ing, dyeing, and drying. The ordinary stuffing boxes are " dispensed with, and a taper tap is formed at the end of the " axle or journal; the tap is made with two openings, one for " the steam to enter, and the other for the exit of the water of " condensation."

[Printed, 10*d*. Drawing.]

A.D. 1864, March 16.—N° 667.

OPENSHAW, George Handel. — This invention relates, "first, to that part of the power loom known as the 'warp "beam,' and is designed for the purpose of placing the required "amount of friction upon the beam without the use of "weights."

"The improvements, consist, first, in the application and use "of a long laminated or plate spring (similar to a coach spring), "which is attached in the form of an arch to a bar on the framing "of the loom immediately beneath the beam, the ordinary ropes "or bands which pass round each end of the warp beam being "attached by means of a screw and nut to the ends of the "spring."

"A second part of the invention relates to a novel means of "imparting an even tension to the warp as the healds rise and "fall, and consists in the use of an eccentric on the crank shaft, "which is connected with arms carrying a rod or bar on which "the warp bears, so that as the eccentric rotates it causes the rod "to move to and fro, thereby giving an even tension to the yarn "by taking up the slack, and vice versa, to compensate for the "rise and fall of the healds."

[Printed, 8*d*. Drawing.]

A.D. 1864, March 16.—N° 673.

MOORE, John, and GADD, William, the younger.—(*Provisional protection only.*)—"The improvements relate to the manu"facture of pile fabric by the weaving of two cloths at the same "time united in the weaving by the pile, and then separated in "the course of manufacture by the cutting of such pile; and the "object of the improvements is to facilitate the uniform cutting "of the pile. For this purpose in one case a cutter is applied "upon a hinge or swivel joint to the end of each of a series of "wires used as pile wires to regulate the distance apart of the "two fabrics and the consequent length of the pile obtained. The "pile is cut by the withdrawal of these wires, and the object of "the cutting end turning on a joint is that the cutting edge of "one may not be injured by the back of the other; or the joint"ing may be avoided by the wires being successively placed in "the fabric one in advance of the other, or so that the cutting "end of each may overhang the preceding, and then as one wire

" is withdrawn to cut the pile threads, the succeeding wires are " brought forward, and so on progressively."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 16.—N° 674. (* *)

BROOMAN, Richard Archibald.—(*A communication from Etienne Mallard, Florentin Bonneau, Adolphe Dumont, and Napoleon Jean Claude Canoby.*)—" Improvements in treating vegetable " textile matters, in separating filamentous matters therefrom, " and the application of such matters to spinning, weaving, and " dyeing."

This invention " consists chiefly in the simultaneous and com- " bined action of two chemical agents not heretofore united in " one and the same action." These agents are by preference salts of soda and linseed oil, or substances possessing " properties " identical or analogous, for the cleansing and freeing of fibres " and filaments from vegetable textile substances to those result- " ing from the simultaneous employment of salts of soda with " oils or other fatty bodies." The materials are first placed in water, which is made to boil, and the chemical substances then added thereto. They are afterwards spread upon a perforated table, and warm water showered upon them for the purpose of expelling the gummy and other foreign matters from them, this part of the operation being facilitated by the use of a roller. If desirable, baths of hot and cold water may also be used to aid this cleansing process. The fibres are next bleached in a bath of liquid chlorine, or of " some hydrochlorine," and dried. The material is next cottonized by being cut " according to the length of staple " required," and carded in an ordinary carding engine, or combed by suitable combing machinery.

This treatment is applicable to " china grass, flax, jute, hemp, " phormium tenax, abaca, agava, and all other textile plants in " general."

[Printed, 4*d*. No Drawings.]

A.D. 1864, March 17.—N° 682.

DALGLISH, David.—" This invention of improvements in " looms for weaving has for object the preventing by automatic " means of the taking up of the cloth when the weft thread fails, " or in the case of loose-reed looms when the shuttle is caught in

" the shed; and the invention consists in providing a simple " direct connection between the weft fork stopper details, the belt " lever, and the holding catch of the take-up ratchet wheel, so " that on the weft failing, the catch is taken out of gear simul- " taneously with the throwing off of the belt lever." " The same " or similar details are acted upon by a catch in connection with " the loose reed when the shuttle is caught in the shed, and the " loom is stopped in consequence."

[Printed, 8*d*. Drawing.]

A.D. 1864, March 17.—N° 688.

EDMONDSON, Joseph, and INGRAM, Thomas. — " Improvements in looms for weaving." " The first part of the " invention relates to means of locking or retaining the shuttles " in the boxes, and consists in the application of a lever (to " each box frame) so formed that the picker when driven back " by a shuttle from the other side of the loom will actuate and " cause the lever to retain the shuttle by clipping or pressing " against it. An adjustable stop is placed between the picker and " the other end of the shuttle box to stop the shuttle in any " required position. This apparatus will also operate instead of a " check strap."

The second part of the invention " relates to means of sup- " plying weft to continuous looms, such as are described in " the Specifications of Patents, N° 860, A.D. 1860, and 239, " A.D. 1863, granted to the aforesaid Thomas Ingram and Joseph " Edmondson, and consists in having a carrier for the weft " cases mounted on the fulcrum of the lathe, so as to be capable " of oscillating in the same arc or curved line as the shuttle " boxes, and is operated by a cam or tappet fixed on the tappet " shaft or other shaft of the loom, or on a stud fixed to the frame " of the loom. The cam or tappet is so formed and set or " adjusted on the shaft as to cause the feeder to commence feeding " immediately after the arrival of the shuttle in the box, and to " finish before the shuttle is again driven out, thereby giving " time and ease in the changing of the weft cases."

[Printed, 10*d*. Drawing.]

A.D. 1864, March 19.—N° 702.

***BILLSON*, Charles.** — (*Provisional protection only.*)—" *Im- " provements in woollen shirts and shirt fronts.*"

The inventor proposes to make "woollen shirts and shirt fronts
" of fabrics having a pattern or figure produced upon it in the
" weaving by causing the warp and weft threads to interlock in a
" different manner in different parts of the fabric. This may be
" done by employing in weaving the fabric a greater number of
" headles than is required to produce a plain or tabby fabric, or
" if the pattern desired be complicated jacquard apparatus may
" be employed."

[Printed, 4*d.* No Drawings.]

A.D. 1864, March 21.—N° 705. (* *)

ALBINSON, John Houghton, and COLLIER, James.—
" Improvements in machinery for spinning, reeling, and weav-
" ing."

The first parts of this invention relate to improvements in self-acting mules.

The "improvements in machinery for reeling" relate to "a " self-acting apparatus for tying up each hank" of yarn in the reeling machine. Each yarn is guided through a slot attached to the bush of a spindle, which bush is turned once round when when the hanks are complete by the aid of pinions and a shaft. The spindle is moved to and fro in the bush by cams, and the yarn, and the tying yarn also, are drawn into the spindle, after being carried round it, so as to form the knot, and the cutting of the yarns and other subservient operations are effected by means of certain fingers, slotted tubes, and other adjuncts.

The improvements in machinery for weaving consist in the application to looms of "roller temples," which are placed " diagonally," instead of being "parallel to the reed" as usual, and have a "positive motion" given to them, whereby the fabric being woven is drawn uniformly forward, and "the strain on the " reed is avoided."

In the Provisional Specification the patentees mention also a pair of discs for the purpose, one of which is furnished with holders which are raised and lowered by inclines, the other having studs which press the selvage of the fabric between the holders. In the Final Specificaton, however, these discs are not mentioned.

[Printed, 10*d.* Drawing.]

A.D. 1864, March 21.—N° 710.

BERGHAUS, Peter.—" This invention consists principally in
" *manufacturing* ribbons in a peculiar form, applicable specially

" to the formation of collars, cuffs, and other articles, and trim-" mings for ladies' dress. The ribbon may be of any material or " pattern desired; but instead of being woven in a straight strip, " as hitherto invariably practised, it is woven in a circular coil or " helical form, so that all that is necessary to form a collar or cuff " of such ribbon is to cut off the required length and hem or " bind the ends. The ribbons are woven in the ordinary ribbon " weaving loom, but instead of being wound on to a straight or " parallel work beam or roller as usual, each ribbon passes through " a pair of conical fluted rollers, which are driven at the proper " speed to take up the work as it is woven, the rollers being " pressed together by weighted levers. It will be evident that as " the weaving proceeds, that edge of the ribbon which passes " between the larger diameters of the rollers will be advanced " quicker than the other edge which passes between their smaller " diameters, and hence the ribbon, instead of being straight, will " be woven in a circle, and will hang down in front of the rollers " in a coil or helix, the radius of the curve given to the ribbon " being determined by the amount of taper given to the rollers."

[Printed, 8*d*. Drawing.]

A.D. 1864, March 22.—N° 719.

LAWSON, John, and LAWSON, John, junior.—"This invention relates to improvements in weaving, and in apparatus " therefor, suitable for various kinds of fabrics, and in particular " for narrow fabrics or for thick fabrics.

" In carrying out one modification no shuttle is used, but there " are two wefts which are drawn off bobbins, one at each side, " and which are held in eyes, hooks, or notches in needles or " carriers. The warps are shed in any common way, and into " each shed both weft carriers are passed from opposite sides, and " then withdrawn; loops of the wefts are thereby laid in the " shed in opposite directions, the ends of these loops being caught " by pins made to enter them either at, beyond, or within the " selvage on the opposite sides respectively from those from which " the loops are introduced."

" In other modifications more than two wefts are used, being " introduced into different sheds, which sheds may be either successive, or, as in the case of thick fabrics, simultaneously, but " it is in most cases preferred to insert in each shed at least two " *loops* from opposite sides. In the case of thick fabrics, such

" as carpets and the like, and where, for example, the object is to " give thickness to the backing, one or more wefts introduced by " a weft carrier may be employed in combination with one or " more wefts introduced by a shuttle or shuttles, firm selvages " being secured by such shuttle or shuttles."

" In weaving cloth to be cut up into chenille or fur wefts or " warps, firm selvages are not necessary, and the wefts may be " introduced from one side only or from both sides.

" A considerable number of different wefts are used, but by " this invention there is only one weft carrier or weft inserter on " one or on each side. The different wefts are drawn off bobbins, " and are acted upon by jacquard apparatus, and harness, or other " equivalent pattern mechanism, so that at each shed the particular weft thread required by the pattern is placed across or " in the hook or notch of the weft carrier or inserter, and is by it " laid in the shed."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1864, March 22.—N° 724.

BERRISFORD, SAMUEL, and AINSWORTH, WILLIAM.— This invention " relates to looms having a series of moveable " shuttle boxes." " The shuttle boxes may be formed one above " another, or arranged in a circle, or in any other convenient " form; they receive up-and-down, oscillatory, or to-and-fro " rotary motion by being connected or geered with a 'star wheel' " arranged to rotate freely on a stud in the framing, which star " wheel forms one part of an intermittent motion, the other part " of the motion being of peculiar construction; the part which " carries the pin or pins, which give motion to the star wheel, is " separate from that part which holds the star wheel when it is to " remain stationary, but both parts are so connected that they " will rotate together on the same axis or shaft; but the pin part " while rotating can have end motion imparted to it in the line " of the axis of the shaft. The pin part is free on its axis, and " can be and is rotated in either direction by being brought by a " clutch-box arrangement in gear with one or the other parts of " the clutches which are constantly rotating in opposite directions. " Each division of the star wheel corresponds to one shuttle box, " and by each revolution of the pin part of the intermittent " motion the star wheel can be moved one, two, or more divisions,

" or the pin part may be rotated without acting upon the star " wheel, which thus remains stationary. If a movement of more " than one division of the star wheel is required to be made by " one revolution of the pin part, then the pin part has as many " pins as are necessary to effect this; but these pins are made to " project at different lengths from the side of the pin part, which " being arranged as herein-before described, can be slided upon " its axis, so that one or more of the pins may be made to act " upon the star wheel by one revolution of the pin part. The " position of the pin part is regulated by endless-chain tappets, " which act through levers and connections upon a suitable clutch " lever; the direction in which the pin part is to be rotated to effect " a change is also regulated by endless-chain tappets, which also " act through levers and connections upon a suitable clutch lever, " which can bring the clutches in and out of gear as required."

[Printed, 8*d*. Drawing.]

A.D. 1864, March 28.—N° 767.

HARTLEY, CHARLES.—(*Provisional protection only*.)—" Im" provements in looms for weaving." The inventor says:— " This invention relates to that description of index machine or " shedding apparatus, in which the treadles or sliding cross bars " act upon the rods attached to the healds by means of oscillating " catch bars, with hooked ends pivoted on studs fixed to the rods, " and vibrated so as to throw one of the hooked ends of each of " them within the sweep of its corresponding treadle. I cause " the aforesaid catch bars to be shifted by a tappet provided with " two arms, one for being acted upon by the pattern chain, and " the other provided with a weight, so that when the tappet shifts " one hook on to one treadle it remains there as long as required, " after which the weight takes that hook off and shifts the other " hook on to the other treadle. And I also place on the rods " projections, which as the rods move up and down come between " the catch bars and tappet, and maintain each hook in its place " until a change is required. Or I employ for the same purpose " a comb, having its teeth behind the catch bars, so that as a rod " rises the catch bar upon it comes in contact with its correspond" ing tooth, and thereby maintains the hook upon the treadle. " These rods are connected to the healds for raising and depress" ing the shed according to the desired pattern of the fabric, and " one of the rods is employed for raising and depressing a lever

" for working a drop box containing two or more shuttles, and " one of the rods is also employed for actuating the ratchet click " or catch of the taking-up apparatus. In order to give motion " to the treadles, I employ eccentrics, the rods of which are con- " nected to one end of double levers, the other ends of which are " connected to the treadles, so that as the eccentrics revolve, the " rods and levers move to and fro, and raise the treadles up and " down alternately."

[Printed, 4*d.* No Drawings.]

A.D. 1864, March 29.—N° 780.

HOLDEN, HUGH, and FORSHAW, ENOCH SAMUEL.—" This " invention relates to the self-acting break mechanism of looms, " and also to the weft fork.

" According to one part of this invention, it is proposed to " combine two levers on the present one-lever break, the one " serving as the weft break lever, and the other as the concussion " break lever. These two levers are both carried on one bolt, " pin, or fulcrum, so that they may act independently of each " other, but with the assistance of a weight on the weft lever. " By the combination of these two levers, and by a joint near the " break head on the weft lever, facilities are obtained whereby the " loom can be stopped instantly the spring handle is thrown off " by the weft breaking with the shuttle at home or boxed." " The end of the weft lever is supported upon either a solid or " an eccentric bracket (whichever is best adapted), bolted to the " spring handle in such a manner as to admit of its position " being regulated thereon. It is further proposed to employ, in " substitution for the ordinary rivetted pin which serves as the " fulcrum for the weft fork, a pin made tapering, and screwed " parallel a short distance down at one or both ends, as may be " found practicable."

[Printed, 8*d.* Drawing.]

A.D. 1864, March 29.—N° 782.

HEALD, ARTHUR.—" An improved composition for sizing yarns " and threads." The " composition is composed of a solution " of chloride of barium, flour, water, and tallow."

[Printed, 4*d.* No Drawings.]

A.D. 1864, March 30.—N° 788.

ALLAN, Thomas.—(*Provisional protection only.*)—The inventor says:—" My invention has for its object the weaving of fabrics " known as twills, lenos, figured fabrics, crape bottoms, floating " twills, satins, also silk stripe, twilled satins, or fabrics figured " and checked in the same manner, also baratheas, linings, overs, " and any pattern requiring no more than sixteen ends." " For " this purpose placing an excentric near one end of the usual " crank shaft of the loom, I connect the same by means of a " suitable rod and lever with a crank fixed in a convenient position over the loom rail. To the extreme end of a second crank " shaft I attach a link or lever which actuates horizontally a " bracket placed in front of the loom rail, such bracket being " kept steady by means of convenient guide rods. A second " bracket affixed to the loom rail, and at right angles to the first " named bracket, and having a row of holes through the top and " bottom, receives wires, the number of which depends upon the " particular figure or pattern it is desired to weave, and consequently upon the number of healds requisite. The wires are " bent in a V shape, but one leg is made much longer than the " other, the shorter one in fact acting chiefly as a guide to steady " the former, which receives a horizontal motion in a manner " herein-after described. Immediately above the aforenamed " wires, the longer legs of which are placed horizontally and " parallel with one another, is fixed a card roller, having rows of " pins or projections capable of easy removal, or a plain cylinder " is used to carry a continuous or endless chain of 'cards,' such " 'cards' being retained in a sufficient degree of tension by a " second carrying roller. It may here be named that motion is " imparted to the 'cards' by means of a ratchet on the 'card' " cylinder axis, operated upon by a catch upon the moving " bracket before named; looped flexible connections of twine " or other suitable material being passed through the V corners " of the wire through the holes of a sustaining bracket and over " grooved pulleys to the healds which they are intended to actuate, " and to which they are secured.

" The operation of the machine is as follows:—The crank shaft " of the loom being set in motion a horizontal reciprocating " motion is imparted by means of the excentric levers and second " crank to the moving bracket before-named. A vertical pin

" resting in studs, and within a spring having a long flat head, " is also carried by the said moving bracket. Upon this pin being " carried to the extreme ends of the longer legs of the V wires " (which are curved over so as to catch the flat head before named " when depressed), the pegs or stops in the 'cards' having been " previously arranged according to the pattern required, depress " the requisite number of wires and cause the same to catch the " flat head, and thus by the return stroke of the bracket to elevate the healds required; the moving bracket again returning " in consequence of the flat head of the pin not being at right " angles to the vertical pin to which it is affixed, and also by " virtue of the spring properties the V shape gives the wires on " compression, the pressure of the pegs or stops being removed " from those wires operated upon by the previous stroke they are " released, other wires then, and consequently other healds, are " put in motion as before."

[Printed, 4*d.* No Drawings.]

A.D. 1864, April 1.—N° 810.

BULLOUGH, John.—" Improvements in looms for weaving." The patentee says:—" First, I employ certain improved arrange- " ments for letting back the taking-up motion and cloth beam." " Instead of allowing the weft fork lever to work the finger and " cross rod used for raising the catches from the teeth of the " ratchet wheel of the taking-up motion when the loom is stopped, " I place the finger out of the reach of the weft fork lever, and " cause it to be moved by hand at the discretion of the operative, " and attach to the ratchet or toothed wheels or shafts of the " taking-up motion a friction pulley, partly or entirely encircled " by a strap attached at one end to a spring connected to a short " arm of a double lever, and at the other end to another and " longer arm of the double lever, which arm is placed between " adjustable stops. When the loom is at work the friction pulley " slides under the strap and stretches the spring, so that the long " arm of the double lever comes in contact with one of the " adjustable stops, but when a weft thread breaks, and the taking- " up motion has to be let back, the operative moves the finger " and lifts the catches from the teeth of the ratchet wheel, and " the spring pulls back the friction pulley, gearing, and cloth " beam, until the long arm of the double lever comes in contact

" with the other adjustable stop, and according to the positions " of the stops, more or less, letting back can be obtained with " certainty."

"Another of my improved arrangements relates to that mode " of 'letting back,' wherein a slide catch in connection with the " ratchet wheel is the agent which regulates the quantity of cloth " to be let back. Heretofore this catch has been moved back by " the force of the yarn beam weights acting through the medium " of the ratchet wheel. I connect this slide catch by a finger to " the holding catch of the taking-up motion, so that when the " weaver pulls the finger on the cross rod, he at the same time " lifts the sliding catch and allows the cloth to be let back."

"Secondly, I employ an improved fly spindle stud and shuttle " guard." "I place the stud in a horizontal slot in the slay sword, " or make a horizontal slot in the stud, so that as the ends of the " spindle or stud wear the stud can be moved and afterwards " tightened against the end of the spindle, and thereby keep it " perfectly tight. I also form on the lower side or bottom of the " stud a projecting surface which projects over the shuttle box, " and acts as a guard to prevent the shuttle from rising when " entering and leaving the box."

[Printed, 10*d*. Drawing.]

A.D. 1864, April 1.—N° 815. (* *)

NEWTON, William Edward.—(*A communication from Almet Reed.*)—"Improvements in looms for weaving hats and other " articles of irregular shape."

This invention relates to the "circular loom," and is described at considerable length. The main features of the invention consist,—

Firstly, in the employment of two separate and distinct sets of mechanism, one suitable for weaving in a flat or nearly flat form, and the other suitable for weaving in a cylindrical or hollow form, and the two so constructed and arranged that the warp may be transferred from one set to the other to change the form of the weaving.

Secondly, in making use of the above-mentioned sets of mechanism, "moveable or adjustable relatively to the other in a direc- " tion parallel with the axis of the loom," which obviates the necessity which would otherwise exist of changing the position of the woven portion of the work at different parts of the process.

Thirdly, in the combination of a certain plate and forming shuttle, by the latter of which the weft or filling is deposited between the threads of the warp, while such threads are being operated by certain "carriers," the plate acting as a clamp during certain parts of the process.

Fourthly, in the combination of a ring or former with the plate mentioned above, or its equivalent, for holding a portion of the work after it has been formed by the shuttle, and preventing it from being drawn out of shape.

Fifthly, in the combination of a series of revolving rings, or their equivalents, with an attached toothed or notched wheel, or pair of such wheels, "to separate a series of warp carriers," and so produce the crossing of the threads of the warp.

Sixthly, in the use of a shuttle constructed in the form of a nearly complete ring, whereby it is made to serve the two purposes of depositing the filling in the warp in forming the side of the crown of a hat or other article, and of gathering in the warp and regulating the size of such crown.

Seventhly, in the employment of a wheel or rollers "so applied " as to press up the filling or weft in the warp by means of rolling " friction where used in combination with a presser bar."

Eighthly, in giving to the pressing devices a movement toward and from the centre of the loom during each of their revolutions, for the purpose of giving an elliptical form to the work when requisite.

[Printed, 1s. 10d. Drawings.]

A.D. 1864, April 4.—N° 837.

SMITH, John.—" Improvements in looms or machinery for " weaving cords and other fabrics." This invention relates, firstly, to a "positive taking-up motion." " The cloth beam is " arranged in bearings, so that it can freely slide up and down in " vertical slots in the framing, and by weights, springs, or the " tension of the cloth the roller is kept up, so that its periphery " or the surface of the cloth wound upon it rests against the " periphery of a roller placed so as to be free to rotate in bear- " ings in the framing above the cloth beam and parallel to its " axis. Instead of a roller a fixed smooth surface may be used. " Upon one end of the cloth beam a worm wheel is secured, which " geers with a long worm fixed on a vertical shaft secured in bear- " ings on the framing, the length of the screw or worm being such

“ that the worm wheel will keep in geer with it in every position
“ of the beam. The vertical shaft has a hand wheel upon it for
“ the convenient adjustment of the taking up, and has also a
“ ratchet wheel upon it with one or more pawls arranged to take
“ any number of teeth or fractions of teeth, these pawls being
“ connected with a lever centred freely on the vertical shaft,
“ which lever receives motion from another lever, the fulcrum of
“ which is carried by a bracket projecting from one of the bearings
“ of the cloth beam, by which means the fulcrum of this lever
“ is changed in position (by the descent of the beam as the cloth
“ is wound upon it), in relation to the pawl lever of the ratchet
“ wheel upon the vertical shaft. The lever having its fulcrum
“ carried by the bearing of the cloth beam receives motion by a
“ connecting rod from the slay or other convenient working part
“ of the loom.”

“ Secondly, to means for imparting the required movements to
“ leaves of healds.” “ Two sets of tappets are employed on
“ separate short shafts, placed at right angles to the shafts or
“ rods of the healds, and these short shafts are in geer with a
“ shaft which passes across the loom, and which forms the ‘tap-
“ ‘pet shaft’ or ‘picking shaft’ of ordinary looms; each leaf of
“ healds is placed in suitable vertical guides, and one end of the
“ leaf or frame receives motion from the lever of its tappet on one
“ short shaft, and the other end of the leaf or frame receives
“ motion from the lever of the corresponding tappet on the other
“ short shaft; by this means each leaf of healds has simultaneous
“ up-and-motion imparted to it at both ends, as required, by
“ means of connecting rods jointed directly to the tappet levers.”

“ Thirdly, to a system or mode of weaving cords and other
“ fabrics, and by which weft may be put into one, two, or more
“ sheds of warp simultaneously, and such weft may be continuous
“ in length.” The main feature of this part of the invention
“ consists in inserting the weft in the shed or sheds by a rod or
“ rods (instead of a shuttle), which rod is passed into and across
“ the shed and carries the weft with it, and when across the shed
“ the weft is pinched, hooked, or otherwise held, so that when
“ the rod is withdrawn from the shed the weft is left in it, and
“ then the reed beats up. By this system double weft is left in
“ the shed by each insertion and withdrawal of the rod from the
“ shed, or single weft may be left in the shed; but in this case
“ one edge of the fabric is a raw edge.” “ If both edges of the

" cloth are to be made good selvedges then the loop ends of the " double weft left on one side of the cloth have a shuttle passed " through them, and by this means the shuttle passes a thread " corresponding to a warp thread through all the loops of the " weft; or the loops of weft at the edges of the fabric may be " secured to form a good selvedge by a hook needle having a " crotchet action."

Another feature of the invention, " and whereby both edges of " the fabric may be made good selvedges, consists in introducing " the weft from each side of the fabric alternately."

[Printed, 1*s.* Drawing.]

A.D. 1864, April 6.—N° 857.

LIGHTFOOT, John.—(*Provisional protectional only.*)—" The " object of this invention is to fix better on cloth and yarns the " flour, starch, farina, or other substances, that are used for sizing " purposes, so that the yarn will be better protected by the size, " and less liable to injury from friction or wearing, and also that " both cloth and yarn will be better preserved from mildew, as " well as a substitute for flour, starch, farina, or substances that " have been used for such purposes." The inventor uses tungstate of soda, potash, or ammonia, either alone or mixed with starch flour, farina, or other substances that are made use of for sizing purposes.

[Printed, 4*d.* No Drawings.]

A.D. 1864, April 6.—N° 858.

NICHOLS, John.—(*Provisional protection only.*)—" This invention relates to those looms worked either by hand or power " in which several warp or yarn beams are employed in the manufacture of strapping, quiltings, and other similar articles, and " consists in connecting all the beams together by toothed wheels, " or worms and worm wheels or other similar gearing, or by " bands or belts, so as to cause them to revolve in a positive " manner without any slipping and uncertainty at equal or " unequal speeds, as may be desired to give the required lengths " of warps or yarns."

[Printed, 4*d.* No Drawings.]

A.D. 1864, April 6.—N° 859.

HUGHES, Edward Thomas.—(*A communication from Alphonse Mermet and Joseph Cornaton.*)—(*Provisional protection only.*)—"This invention consists in an improved system of weaving "woollen velvets and plushes, for the purpose of making the "pile of such elasticity that designs can be printed upon it with "ease, correctness, and efficiency." A diagram is given shewing "the tie-up of the loom.

"Two binder threads and one pile thread are on one warp "beam, and one pile thread and one double foundation thread "on another warp beam, and there are five threads between the "teeth of the comb, as the threads of the second roller can be "passed through every other tooth. Or their can be four rollers "or warp beams, one for the binder, one for the stuffer, and two "for the nap or pile."

[Printed, 6*d.* Drawing.]

A.D. 1864, April 14.—N° 936.

BULLOUGH, James.—"Improvements in looms for weaving." First, the improvements relate to arrangements for causing a loom "to stop sooner after the breakage or absence of the weft "than has been heretofore accomplished." Forks or combs are fixed to a rod placed on or near the reed cap or breast beam. "This rod is held in bearings and is caused at the proper time "after the shuttle has passed to make part of a revolution by "attaching it to one or more levers, wheels, straps, or cords "worked by one or more eccentrics on the tappet or crank shaft "of the loom. This motion of the rod brings the combs or "forks in contact with the weft, thereby forcing it back towards "the reed." The weft feelers, described in a former Specification, dated May 14th 1861, N° 1225, "then descend and cause the "stoppage of the loom or not as heretofore, according to the "presence or absence of the weft." The patentee modifies this arrangement by "placing the eye of the shuttle next to or fronting "the reed for the purpose of delivering the weft closer to the "reed." In another arrangement the patentee employs "intersecting and traversing threads for the purpose of sustaining and "carrying the pick of weft close to the reed."

Secondly, the improvements relate to apparatus for lifting the weft feelers after the loom has stopped through breakage or absence of weft. The weft feelers are lifted by means of springs or weighted levers on a shaft or rod reaching across the loom. To the shaft is fixed a handle which the operator uses to give the shaft part of a turn so as to lift the weft feelers when he starts the loom.

Thirdly, the patentee modifies the common calico loom weft motion so as to make it suitable for woollen and other looms. The weft fork is fastened "to a vibrating lever similar to what is "usually called the sector or weft fork hammer, for the purpose "of causing the fork to meet the advancing reed, and thereby "come in contact with the weft or detect its breakage or absence "sooner than when the fork is attached to the ordinary weft fork "lever or its equivalent."

Fourthly, the patentee employs "certain improvements for "enabling a loom to make more picks per minute without interfering with the time in which the shuttle does its work." For this purpose a tappet or excentric is fixed "on the crank shaft, "which works an L lever carrying a bowl, which is in contact "with the driving strap. The motion of the tappet or excentric "acting on this lever is so timed that when the shuttle is safe "home in the box, this lever immediately tightens the strap, and "when the shuttle is about to cross the race, the pressure of this "lever is removed and the strap is slackened." With the same object the patentee fixes "on the driving pulley on the cranked "shaft a curved projection or tightener, that is to say, that part "of the pulley which drives the loom, while the slay moves "from the top to the bottom centre, has a lump or projection "upon it."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1864, April 16.—Nº 964.

RILEY, JOHN.—"An improved sizing substance." The patentee uses "chloride of barium in solution, either alone or mixed with "other sizing materials, such as flour, starch, farina, or similar "matters, the proportions to be varied according to the kind of "goods to be sized. This sizing matter is applicable to yarns, "threads, textile fabrics, and all kinds of goods required to be "sized; and also in finishing prints, and preventing mildew." In some cases chloride of calcium and chloride of sodium are used with the chloride of barium.

[Printed, 4*d*. No Drawings.]

A.D. 1864, April 18.—N° 971.

GEDGE, William Edward.—(*A communication from Jean Baptiste Beau.*)—" An improved power loom for weaving." " It " permits not only the making of plain fabrics, but also of fabrics " having from one to five colors, fancy articles, shawls, waist- " coatings, dresses, furniture pieces, Utrecht and silk velvets, and " other fabrics."

The batten is hung from above, and in the loom first described horizontal shuttle boxes are used, moving from front to back, actuated by a modification of the jacquard machine, termed " Beau's system." The picker sticks are actuated by a weighted lever and spring, and are brought back to the end of the shuttle box by a crank pin in a wheel acting on the weighted lever, which is held up by a notched piece until released by " Beau's system." The stop motion, for throwing the loom out of gear when the shuttle does not arrive in the box, is actuated by a pin in the bottom of the shuttle box, which pin, when not pressed down by the shuttle, causes a lever to disengage a clutch connected to the driving pulley.

The batten is moved by buttons fixed on elliptical excentrics, the buttons work in slotted pieces attached to the batten.

A mechanical temple is used, composed of two parts united by a screw, the effect of which is to lengthen or shorten the arrangement; at each end of the temple are two wheels furnished with pins which enter the selvages.

The cloth is wound upon the cloth beam by gearing actuated by a ratchet wheel and clicks, the action of which is governed by a regulator.

When making " double piece velvets," a flat knife blade is used " to cut these velvets in two plies;" the knife is attached to levers worked by a crank in connection with toothed wheels.

An improved shuttle is shewn, " the bottom of which is of " steel, the small rollers are of much greater diameter than those " hitherto used, the object of this increased diameter being to " give greater speed to the shuttle."

A series of small iron rollers are shewn placed in pieces, " one " on one side and one on the other side of the framing. The " effect of these rollers is to produce the separation of the warp " from each other, and prevent shrinking and entangling." A modification of the above arrangement for working horizontal shuttle boxes is described adapted to vertical shuttle boxes.

[Printed, 4*s*. 6*d*. Drawings.]

A.D. 1864, April 20.—N° 982.

COOPER, William Giles, and FLETCHER, James.—This invention relates to an arrangement for weighting the yarn beam of a loom. The patentees "joint to a bracket fixed to one of the
" end frames of the loom a short lever carrying a comparatively
" light weight, and connect one end of one of the chains or ropes
" which encircle the beam to this lever near the fulcrum, and the
" other end of the chain or rope to one end of a balance or equili-
" brium lever, the other end of which lever is connected to one
" end of the other chain or rope which encircles the beam, the
" other end of the chain or rope being held fast to a strong
" spring attached to the framework of the loom, or to the frame-
" work itself."

[Printed, 6*d*. Drawing.]

A.D. 1864, April 23.—N° 1029.

HUSSEY, Daniel.—This invention relates to the letting-off motion of a loom, and consists in the employment " of escapement
" wheels communicating by gearing with the yarn or warp beam
" of the loom and working in connection with escape motions
" acted upon by a vibrating lever, the movement of which is
" regulated by the tension of the warp or yarn."

[Printed, 10*d*. Drawing.]

A.D. 1864, April 25.—N° 1041.

NEWTON, William Edward.—(*A communication from Bénoit Guilbert Dutel.*)—(*Provisional protection only.*)—"The object of
" this invention is to lace or connect together with strings or
" cords worked by mechanical means the perforated cards used in
" jacquard weaving. This is effected by means of two threads or
" cords, which are interlaced one with the other so as to produce
" a fast knot. In carrying out the invention the perforated cards
" are placed in regular and proper succession upon a rotating
" frame composed of a shaft, on which is mounted any suitable
" number of discs provided with pins or studs, whereby the card
" may be held steady while being operated upon. The cards are

" held down on the discs by thin steel blades or fingers until " they are properly secured together, when they will as the " operation proceeds escape in succession from under the holding " fingers, and will be lifted off the pins or studs of the discs by " other fingers or arms, which are made to pass under them for " that purpose. The laces, threads, or cords to be used for connecting the cards together are mounted on two bobbins or sets " of bobbins, one being above and the other below the cards. " The cords from the lower set of bobbins pass through the eyes " of needles, which by means of an excentric motion are pushed " up through the lacing holes in the cards. When the needles " begin to retire they produce a loop, the formation of which is " further facilitated by means of a set of horizontal points, " which are thrust forward at the right moment to open the " loops. The upper bobbins are then pushed through these loops " by means of forked levers, and when the threads are drawn " tight the upper bobbins are carried back again to their original " position. The cylinder or discs which support the cards then " make a forward motion, and bring another set of holes under " the operation of the lacing needles, and so on until all the " cards are connected together."

[Printed, 4*d*. No Drawings.]

A.D. 1864, April 30.—N° 1090.

CRAWFORD, JOHN KENNEDY.—" This invention relates to the " producing of ornamental fabrics in a novel manner, capable of " rendering designs of considerable richness and complexity, such " as shawl designs, at a comparatively small cost.

" In practising the invention according to one modification the " design is in part printed on the warps prior to weaving the " fabric, and in the weaving process weft of one or more colors " is used, and by means of jacquard apparatus is made to produce " additional parts or details of the design, combining with and " enriching or modifying the portions of the design already " produced on the warps by the printing action."

[Printed, 4*d*. No Drawings.]

A.D. 1864, April 30.—N° 1102.

***JOHNSON*, JOHN HENRY.**—(*A communication from Friedrich Emil Obermüller.*)—(*Provisional* protection only.)—" This invention relates to a peculiar construction and arrangement of apparatus to be applied to looms for weaving figured fabrics as a substitution for the ordinary jacquard." "The improved apparatus consists of a lifter containing, say, two lifter bars for operating upon two rows of vertical hooks. A lever or levers operated upon by two treadles, and connected with the lifter, causes the latter to rise and fall, and with it the two ranges of hooks above referred to. The lower ends of the stems of these hooks rest upon a board, which turns or oscillates upon a fixed centre at one end, whilst its opposite extremity is connected by means of a rod with one end of an overhead balance lever. The opposite end of this lever is connected by a second rod with the lifter. The free ends of the two lifter levers, above referred to, are connected with the shorter arms of two bell cranks." "The two longer arms carry the main or large 'cylinder' of the machine, which consists of a four-sided prism, perforated with as many holes as are required according to the number of needles in the machine." This cylinder carries cards, and "is in most respects similar to those in ordinary use." "In combination with this large 'cylinder,' there is a small 'cylinder' or prism, which is caused to rise and fall alternately, whilst the large 'cylinder' moves to and fro in a horizontal or nearly horizontal direction." "Upon this small cylinder is carried an endless series of pattern surfaces, upon which rest vertical rods pressed down by helical springs, and guided in horizontal guiding bars; these rods carry or support the needles in two horizontal rows, and through loops in these needles pass the vertical hooks above mentioned." "The endless series of pattern surfaces carried by the small 'cylinder' consists of a number of laths jointed or laced together, and having a dovetail groove formed longitudinally therein. In this groove are inserted, according to the pattern to be produced, a number of movable blocks of different heights, which serve to raise, more or less, the vertical rods when brought against them by the rising of the small cylinder; this causes the ends of the needles also to be brought to different elevations, so that they may engage with the proper holes in the main cylinder. The healds consist of a wrought-iron bar connected by cords with the vertical hooks before mentioned, and having suspended therefrom the leads or weights, each of which has an eye in the middle, and through the series a weighted or

" distended cord passes horizontally, so as to thread together " each row."

[Printed, 4*d.* No Drawings.]

A.D. 1864, May 6.—N° 1146.

HODGSON, GEORGE, and MARTIN, ALEXANDER HENNAH.—" Improvements in means or apparatus employed when giving " motion to rotary shuttle boxes of looms." " The object of the " improvements is to give increased steadiness to rotary shuttle " boxes after each change from one shuttle chamber to another." The patentees apply " stoppers in connection with the means for " effecting the partial rotation of the series of shuttle chambers, " to check or stop the momentum produced on the series of " chambers by the motion imparted to them. These stoppers " may have a tendency to be out of action with the box by slight " springs or otherwise, so as to admit of the boxes being freely " turned by hand when required, and they are brought into action " by the means employed to give rotary motion to the series of " chambers."

[Printed, 10*d.* Drawing.]

A.D. 1864, May 9.—N° 1176. (* *)

PULSFORD, GEORGE, and WALKLAND, GEORGE.—" Improvements in means or apparatus employed in the manufacture " of lace by lace machinery, which improvements are also applicable in the manufacture of other weavings."

The object of this invention " is to admit of variations in the " gauge or width of the fabric during manufacture in lace " machinery. For this purpose, in place of the short and comparatively stiff taking-up points now used," the patentees employ " thin blades or points, of length and flexibility which " will admit of their being readily set and held at a different " gauge at their outer or operating ends from where they are set " in their leads or other holding means. Each of these points is " passed between blades or divisions of combs, which at the parts " where variation in the gauge of the fabric is required are " inclined, so that at such parts these blades or combs are at one " of their ends set closer together than at the opposite ends " thereof, in order that any movement of them, in relation to the

" points, will at such parts effect variation of the gauging of the " points at their outer or operating ends. The variation of the " gauging of the points is effected during the working by means " of jacquard or other pattern surface, aided by springs or weights " acting on the bar or bars carrying these combs, to cause them " to slide upwards or downwards, or it may be endwise, on the " points, or to control these combs whilst the points move within " them."

This invention is mentioned as being also applicable to the reeds of looms used in manufacturing fabrics other than lace.

[Printed, 10*d*. Drawing.]

A.D. 1864, May 12.—N° 1209.

DODGEON, John, GAUKROGER, John, and SHACKLETON, William.—" This invention relates to the letting-off " or weighting motion in looms for weaving, and the improve" ments consist in the application of a friction plate or pulley " each end of the warp beam, in addition to the ordinary ruffles " or hoops which are now employed; these friction plates are " supported in straps or chains suspended to the loom end frames, " and the beam is supported in the plates. A catch is hinged on " each of the plates, which takes into a ratchet wheel fixed on " each end of the beam, which may be either in or out of gear, " so as to connect or disconnect the beam and the plates, as may " be required."

[Printed, 10*d*. Drawing.]

A.D. 1864, May 19.—N° 1264. (* *)

COMBE, John, and SMALPAGE, John Henry.—" Im" provements in the action and arrangement of machines for " winding cops, and in apparatus for warping and beaming from " cops, part of which improvements, consisting of a differential " motion, is applicable to roving machines."

This invention consists, firstly, " in connecting the frame ends " and middle bearers of cop winding machines by means of cast" iron girders bearing at three points, so as to produce a firm " framework independently of the spindle rail and top rail, which " are then fitted on to seatings so formed that the frame ends and " middle bearers being fixed contiguous to each other in a planing " machine the seatings may be planed at one operation, and in "fixing the bearings which carry the tension lever and adjusting "levers to the covering plate which protects the driving wheels, "so as to simplify the arrangement of the parts of cop winding "machines and facilitate their removal as required."

Secondly, "in making the clutches for the spindles of cop "winding machines of a rib cast on or fixed to the top of the "spindle wheel, over which rib two jaws of bent spring steel are "made to drop when the spindle is put in motion, and are lifted "by the stopping lever clear of the cross rib when the spindle is "to be stopped, these jaws of spring steel being mounted on a "screw and nut, which fits and slides freely on the lower end of "the spindle, which is flattened on two sides."

Thirdly, "in so arranging the treddle and lifting lever, jointed "to a socket which receives a collar screwed to the lower end of "the spindle, that the socket shall rise and fall in a right line coincident with the axis of the spindle as it is raised or lowered "by the action of the treddle, or in the process of winding, and "in making the top of the spindle split, and jointing to the split "part a small wedge-formed catch, so that when the catch end is "laid horizontally the split in the spindle will be opened by the "wedge-formed portion of the catch so as to retain the cop on "the spindle, while when the catch end is turned up perpendicularly the split in the spindle will close and allow the cop to slip "from off the spindle."

Fourthly, "in placing the joint of the stopping lever on the "inner side of the line of spindles, and retaining it by a double-"acting spring catch, so that the stopping lever will be liberated "and stop the spindle by the pulling in or falling down of the "tension lever, or by the rising of the lifting lever, an adjustable "pin being attached to the spring catch on which the lifting "lever acts, so that the stopping lever may be liberated, and the "spindle stopped when the required length of cop is wound."

Fifthly, "in arranging the bobbins from which cops are to be "wound with their axes longitudinally instead of transversely to "the machine, and prolonging the friction lever downwards, and "connecting it by a wire with an adjustable screw to another "lever, carrying a small roller acted on by a swell attached to the "tension lever, so as to release the bobbin from friction by the "pulling in of the tension lever, which arrangement of levers is "*also applicable* to release the swifts from friction in winding "*cops from the* hank."

Sixthly, "in producing an uniform speed in beaming from cops "by connecting the weighted levers which actuate the pressing "bar with a cranked lever with two arms, one of which carries a "reversing roller, and slides the driving roller carried by a shaft "actuated by the driving pulley to and from the centre of a pair "of double discs, the shaft carrying which also carries a pinion, "gearing into a wheel which gives motion to a sliding shaft "which receives and actuates the beam on to which the yarn from "the cops set up in the cop frames is being warped."

Seventhly, "in carrying the cops set up in the cop frame or "wire staples projecting from the cop frame so as to dispense "with the long tube described in a previous patent, using there-"instead a short tubular eye of glazed pottery ware."

The "previous patent" alluded to appears to be that granted to the present patentees, A.D. 1863, No. 937.

[Printed, 1*s*. Drawing.]

A.D. 1864, May 20.—N° 1272.

WILSON, Edward.—This "invention is applicable to looms "in which the lay or batten is provided with a fast reed, and it "consists in removing the stop rod from the lay, and supporting "it in moveable bearings connected to the framing of the loom; "by this means the weight of the lay is reduced, and con-"sequently a greater speed may be given to the loom with less "power and vibration."

[Printed, 8*d*. Drawing.]

A.D. 1864, May 26.—N° 1310.

BROWN, John Harcourt.—"Improvements in treating animal "substances for the manufacture of size, pulp, and pulpy matter, "and converting the said pulp or pulpy matter into sheets, "slabs, blocks, thread, hollow or tubular articles, and such other "articles of commerce for which the said sheets, slabs, blocks, "threads, hollow or tubular articles may be applicable."

For the production of the articles the patentee employs the "refuse of animal hides known as scrolls or glue pieces, and also "the cuttings of calf and sheep skins, or the hides or parts of "hides of any other animals." The skins are first soaked in water until they are soft and pliable, and the dirt and lime is removed by brushing. They are then submitted to a bath composed of one part American potash, three parts unslacked lime, and thirty-five parts water. "The potash, lime, and water, must "be boiled and frequently agitated for one hour or more; after "allowing it to deposit the lime the clear lixivium or caustic "liquor is to be poured off, and while at a temperature of 70 or "100 degrees Fahrenheit the pieces of skin are to be submerged "in this liquor, and the temperature before-mentioned is to be "kept up until the epidermis can be removed by hard brushing "or any other suitable means." "When the epidermis is "removed the pieces are to be washed clean in cold soft water, "and are then fit for conversion." "When fibre is to be produced, the pieces are to be crushed or bruised by stampers, "hammers, or any other suitable machinery." "When the "pieces are broken down and crushed as thin as it is possible to "spread them out, they are to be submitted to a lukewarm bath, "composed of 100 parts by measure of soft clean water, and one "part of sulphuric acid of the ordinary strength." "The thin "crushed pieces are to be placed in this acidulated bath, and "allowed to remain until they assume a jelly-like appearance. "At this stage the acidulated liquor is drained off, and they are "submitted to the clear bleaching liquor (a solution of chloride "of lime by preference) until the fibrous effects are produced." "When the fibre is firm, hard, and white, it can either be removed "or the liquor drawn off, then it is to be washed to free it from "the lime which may adhere to it in the bleaching liquor in cold "soft water, in which some spirit or carbonate of ammonia is "introduced to kill the bleach." "The fibre is now in a fit state "to be made into sheets as substitutes for parchment, vellum, "bindings for books, or coverings for cases, and such like purposes, also as a substitute for tracing paper. These are produced by the usual machinery employed by paper makers." For the production of cards for jacquard machines the patentee adds "10 per cent. of ordinary animal fibre with the usual vegetable "pulp and other matters of which they are usually made. This "renders them more durable, and admits of the perforations "being cut cleaner." When threads or yarns are required, the patentee prefers "that the animal fibres should be in a semi-dry "state, and either alone or mixed with woollen waste, in the proportion of one-third of the waste to two-thirds of the fibre by "weight may be first carded together, and then spun by the usual "*spinning* machinery."

[*Printed, 6d.* No Drawings.]

A.D. 1864, May 27.—N° 1322.

HUDSON, James, and CATLOW, Christopher.—“Improvements in looms for weaving.” The patentees say:—“Our invention relates, firstly, to a method of letting off the warp from the warp beam, for which purpose we use the motive power, and cause the said warp beam to revolve by a positive motion.

“We propose in carrying out our invention to use an excentric upon the crank shaft, which excentric causes a lever to turn upon a centre of motion, on the other side of which is a link to which the usual weighted rope is connected. When, therefore, the aforesaid lever is acted upon by the excentric, the said rope is pulled upward, and the warp beam is turned positively to let off the yarn, and when the lever turns back again, the rope being slack will allow the beam to turn in the other direction. The link above mentioned is mounted so as to be capable of sliding on the lever, but is prevented from doing so by a rod resting upon the warp beam, but as the said warp beam decreases in diameter, then the moving inward of the rod allows the said sliding to take place, and the link is acted upon by a greater radius of the lever, and the warp beam is turned through a greater space.

“Another part of our invention relates to a method of acting upon the ‘jacks’ or ‘heddles,’ or other such apparatus for the purpose of making the shed. To this end we employ a cam with a projecting flange situate between two rollers mounted upon the said ‘jacks’ or ‘heddles.’”

[Printed, 1*s*. Drawings.]

A.D. 1864, May 30.—N° 1332.

HATTERSLEY, Richard Longden, and HILL, James.—(*Provisional protection only.*)—“Improvements in looms for weaving.” The inventors say:—“This invention relates to means of operating rotary shuttle boxes, and one part has reference to further improvements upon means or apparatus for which Letters Patent were granted to the aforesaid Richard Longden Hattersley, dated May 24th, A.D. 1858, N° 1155.”

“Now the object of the present improvements is to enable any change to be made in the shuttle boxes, or to ‘skip’ from any one compartment to any other compartment in the series, as *may be required*, and for this purpose instead of having only

" one hook on each of the portable hooks or catches, we have as " many hooks placed thereon at suitable distances apart as the " greatest number of compartments to be turned in any single " action requires. Also we have the ends of the rods, pins, or " needles which come in contact with the cards of the jacquard " or indicating apparatus constructed of different thicknesses or " steps, the thickest part forming a shoulder to the next smaller " part, and so on, and the cards are prepared with different sizes " of holes to correspond, so that a small hole in the card will only " admit the smallest size or end of one of the rods, pins, or " needles to enter to its shoulder, but the next larger size of hole " will admit of the next thicker portion of the rod, pin, or needle " to enter to its shoulder, and so on; the rods, pins, or needles " being capable of passing through the cards according to the " size of hole in the card presented to it, and thereby give more " or less extent of motion in the turning of the shuttle boxes " through the operation of each taper rod, pin, or needle. We " also accomplish the same result by the use of levers attached " or connected to the rods, pins, or needles above described, " instead of wedges."

" Another part of the improvements has reference to operating " rotary shuttle boxes from or by the crank shaft or other shaft " of the loom, also to a means of locking or holding the shuttle " boxes in correct position, and for releasing them at the proper " time for change of compartments. This consists of pushers " operating on each side of a stud plate, which is fixed on the " spindle of the shuttle box, and which pushers and stud plate " are so formed and arranged and provided with guards that the " pushers can only be pushed or moved a certain distance sufficient to move the shuttle boxes to the extent of one compartment or a change to the adjoining compartment in either " direction. Also a spring catch is actuated simultaneously with " either of the pushers, to drop into a notch of the stud plate " and hold the shuttle boxes in position, and which is lifted or " removed from the notch so as to release the shuttle boxes when " a change is required to be made."

[Printed, 4*d*. No Drawings.]

A.D. 1864, May 31.—N° 1353.

PLATT, JOHN, and HARTLEY, EDMUND.—" Improvements in " *looms for* weaving." The patentees say,—" Our invention

" relates, firstly, to a method of driving looms whereby we are
" enabled to reverse the motion thereof. For this purpose we
" employ a fast and loose pulley as usual, but in addition to
" these we adapt a friction surface or clutch box, which when
" slidden forward locks the two pulleys together, and the motion
" of one is thus communicated to the other. The loose pulley
" thus for the time being becomes fast, and by a train of toothed
" wheels causes the driving shaft to revolve backward. Secondly,
" our invention relates to the apparatus for effecting the letting
" off the yarn or the taking up of the cloth. For this purpose
" we use a cam for giving motion to the driving clicks as usual,
" but the said cam is driven through the medium of a click taking
" into a notch, but over which notch the said click slips when
" the loom is turned backward, and the letting off of the yarn or
" the taking up of the cloth is therefore suspended.

" In another arrangement we employ for these purposes a cam
" upon the crank shaft acting against a lever mounted upon a
" centre carried by another lever which gives motion to the letting
" off or driving click. During the working of the loom the first-
" mentioned lever acts simply as a rod for communicating a
" vibratory motion to the click lever, but when the loom is turned
" backward, then the said first-mentioned lever is caused to turn
" upon its centre instead of communicating a vibratory move-
" ment to the click, and the operations of letting off or taking up
" are suspended."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1864, June 4.—N° 1392.

SMITH, Joseph.—" Improvements in apparatus for weaving
" ornamental fabrics." The patentee says,—" The object of this
" invention is to effect double or treble figuring on fabrics of
" broad width, that is, producing detached patterns without a
" counterpart at the back, with two or more colors, without dis-
" placing the shuttles from the batten. To this end I use, say,
" for double figuring, two sets of shuttles that run in the same race,
" but are driven by independent mechanism, which mechanism
" may operate the two sets of shuttles alternately, or cause either
" set to throw a succession of shoots, according to the work in
" hand. The shuttles may be operated in any approved manner,
" but I prefer to work each set by means of a sliding notched bar,

“which traverses sliding hooks or shuttle drivers (that are mounted loosely on fixed guide rods in the batten) to and fro, and throws the hooks in and out of contact with their respective shuttles to engage them with and disengage them from the shuttles. If desired more than two set of shuttles may be applied to the same race to produce a greater variety of colors in the woven pattern. The batten, with its ornamenting shuttles, is raised from the work to allow of the ground being woven, which weaving is effected by the use of the ordinary fly shuttle. The batten is capable of being shifted endwise, so as to distribute the repeats over the ground instead of their being woven in line with the patterns of the last finished row.”

[Printed, 10*d.* Drawing.]

A.D. 1864, June 8.—N° 1428.

TWEEDALE, Abraham—“Improvements in temples for looms.” This “invention relates to those temples which are armed with projecting points taking into the cloth, and which are capable of revolving upon centres, and consists, firstly, in imparting rotatory motion thereto irrespective of the action of the cloth.”

In one arrangement the patentee employs “for this purpose a ratchet wheel acted upon by a click, which is carried by a vibrating lever. This lever is weighted at one end, and its click bears by that weight at every vibration upon the ratchet wheel, and imparts rotatory motion to the revolving temple in amount more or less according to demands of the cloth.

“In another arrangement the above-mentioned weight is dispensed with, and the driving click acting upon the ratchet wheel is caused to vibrate with a positive motion by connection with any ordinary moving part of the loom.”

Another part of the invention relates “to a method of adapting the spikes which act upon the cloth.” These spikes are mounted “within a casing which contains cams, and these cams by acting upon the spikes protrude them to lay hold of the cloth, and withdraw them when they are to leave it.”

[Printed, 1*s.* Drawings.]

A.D. 1864, June 11.—N° 1448.

HALL, Robert, and CHAMBERS, James.—“Certain im*provements* in looms for weaving.” The patentees say :—

" Our invention relates, first, to the shedding motion, and " secondly, to the drop-box motion for bringing the shuttles in " any required succession in a line with the shuttle race.

" In performing our invention we employ a jacquard apparatus " for selecting the healds that are to be raised and lowered by " jacks above and below to form the shed. The jacquard cylinder " is provided with four or other convenient number of rows of " holes, and it is raised and lowered to bring either row in line " with the ends of the jacquard needles by means of a tappet " chain acting on suitable levers. The jacquard cylinder is driven " by a star wheel and stud on a moveable disc, and the grifes for " actuating the jacquard hooks are worked by cams, which are " made with a dwell, corresponding to that produced in an ordi" nary calico loom. The hooks are connected to the top and " bottom jacks in the ordinary manner.

" The drop box, containing six or other convenient number of " compartments, is raised and lowered by a chain of tappets " acting on an elbow lever, to one arm of which is connected a " chain passing around a pulley. To this pulley is fixed a spur " wheel gearing in a rack connected to the drop box; the position " of the drop-box is varied according to the height of the tappet " acting on the elbow lever above referred to.

" Both the above motions are governed or brought into action " when required by another jacquard apparatus, consisting of a " perforated chain passing over a cylinder and a feeler, which is " traversed to and fro lengthwise of the cylinder by an endless " screw, moved by a star wheel, after every two picks, to bring " the feeler over a fresh hole of the cylinder. When the feeler " drops into a hole of the card a chain of tappets is brought into " action, which is connected by levers to the axis of the swing " frame of the shedding motion jacquard cylinder and to a sliding " bush, to which is fixed a stud acting on the star wheel of the " chain barrel of the drop-box motion. When the feeler has " arrived at one end of the cylinder a pin projecting from a chain " of links acting on a fixed incline slides a star wheel on the shaft " of the cylinder into position for being turned partly round by a " stud projecting from a disc or drum fixed to the shaft, by which " the feeler is raised and lowered; to the said disc or drum is " fixed another stud for actuating a star wheel fixed to the barrel " of the chain of links above referred to.

" Another part of our invention consists in a second improved

" apparatus for working the healds, composed of a chain of tappets " working round a barrel or cylinder, and acting upon suitable " elbow levers for raising and lowering the shed. This barrel or " cylinder is placed in a line with the crank or tappet shaft, and " is driven by gearing from the end of the crank. The fulcra of " the above elbow levers are placed one above and the other " below the centre of the cylinder at convenient distances; the " ends of the levers, which meet a little above the centre of the " cylinder, are provided with bowls, which are actuated by " the tappet chain, thus raising or lowering any required shed.

" Another part of our invention relates to a positive taking-up " motion with one plain beam constructed in the following " manner:—A ratchet wheel provided with a cam on each side, " increasing in diameter from the centre, and extending ¾ths " round the circle; two straight arms with a slot in, slided on the " ratchet wheel pin, each provided with a pulley working against " the face of the aforesaid cams, and each giving a backward and " forward motion during a revolution of the ratchet wheel; these " two arms or levers impart motionto two other levers fixed on " a stud on each side of another ratchet wheel, and by means " of suitable gearing give motion to the cloth beam. The two " straight arms first named are gradually raised from the centre of " the two levers, to which they impart motion by means of a con- " necting rod or other suitable apparatus, consequently imparting " a movement corresponding to the diameter of the cloth roller."

[Printed, 2*s*. Drawings.]

A.D. 1864, June 22.—N° 1556.

HEPTONSTALL, CHARLES.—" Improvements in means or ap- " paratus for manufacturing and finishing stays." The patentee says:—" This invention relates, firstly, to means of working the " harness or healds." " Heretofore the several knives or lifting " bars of the jacquard apparatus employed for this purpose have " been operated by the weaver acting upon separate treddles with " his feet. My improvements consist in dispensing with all " treddles, lambs, jacks, and their connections, and instead of " which a hooked rod is jointed to each end of each lifting bar, " and the two rods on one bar are connected by another rod or " *needle*, and springs are applied to hold them in position; also " *a block* or crosshead capable of moving up and down in the " *jacquard frame*, to which are attached two other lifting bars

“ crossing the ends of the former bars, and to which reci-
“ procatory motion is given by lever and rod from a crank or
“ eccentric on the crank or other shaft of the loom. I
“ also apply a perforated cylinder suspended in an oscillatory
“ frame, which actuates the needles according to the arrangement
“ of the perforations therein, and this cylinder is capable of being
“ readily moved endwise so as to bring other sets of perforations
“ into position for acting upon the needles according to the kind
“ of fabric required to be produced.”

“ Secondly, the invention relates to means of taking up and
“ holding the fabric or stay cloth as it is woven.” “ Now I ac-
“ complish the taking up by employing a roller in place of the
“ clamps, to which an ordinary taking-up motion is applied, and
“ I employ a series of weighted levers to bear against the roller
“ for nipping and holding the fabric in contact therewith, and
“ to take up the slack I introduce a ‘swell’ or block of wood or
“ other suitable substance made to the size and form necessary
“ to thicken the roller in that part to the required extra length of
“ fabric.”

“ Thirdly, this invention relates to means of ‘ironing’ or
“ pressing stays, which hitherto has been done by hand. Now I
“ employ a bust or block of suitable form, and capable of being
“ adjusted to the size required to fix what is commonly called ‘a
“ ‘pair of stays’ upon, and which bust or block is mounted on a
“ spindle or on pivots, and is capable of rotating in a frame. A
“ series of weighted levers are mounted side by side on a carriage
“ capable of reciprocating underneath the block. The levers are
“ so formed and arranged as to press equally against each part of
“ the unequal surface of the stay or fabric, and have smooth
“ surfaces with a hollow or cavity on the opposite side in each,
“ with a jet of gas placed therein to heat the irons or levers.
“ Rotary motion is given (by hand or power) to the bust or block
“ and a slow reciprocatory motion to the carriage, so that the
“ pressers are brought in contact with every part, which thereby
“ becomes pressed.”

[Printed, 2*s.* 2*d.* Drawings.]

A.D. 1864, June 27.—N° 1605.

JOHNSON, JOE MARSHALL, and BUCKLEY, JOHN.—“ Im-
“ provements in machinery for warping, beaming, and balling
“ cotton and other yarns or threads.” The “ improved machinery

" for warping and beaming consists of a double creel of a V-form for supporting the bobbins on which the yarn or thread is wound. This creel has guides for separating the yarns or threads from each other in their passage to a reed, which is provided with projecting wires or dents at intervals to divide the yarns or threads into sets of any required number to facilitate the counting. The projecting wires or dents may project at different distances on each side of the reed. After the yarn or thread has passed through the above-described improved reed, or a reed of the ordinary construction, it is taken between friction and measuring rollers of the usual construction, beyond which are the usual running back rods and gear. The yarn or warp is now divided into two equal number of parts by passing each alternate yarn over and the others under a dividing rod, with releasing catch or gear. The yarn now passes through the single end heck or reed which is made with the space between the alternate dents closed in two parts, to leave a space for the yarn between them. This heck or reed is for taking the shed or single end lease in the open warp. The yarn now passes through another heck or reed for taking the lease of any given number of yarns or threads required. Both these hecks or reeds are raised and lowered by the attendant to form the lease when the required length of warp has passed through the machine. The warp afterwards passes through a stationary reed, with a regulating screw for keeping the selvage warps in line with the flanges of the warp beam on which it is wound. An apparatus for marking the length of the yarn in cuts and registering the length of the warp is applied as in beaming frames of the ordinary construction and another marking apparatus is also applied to the machine for marking the strings or other division in the warp. A friction apparatus is applied to the side shaft connecting the measuring roller to the marking apparatus to ensure accuracy of measurement, and to give tension to the yarns. When the warp is required in balls, the beams, filled in the machine above described or in any other suitable machine, are placed on a stand or frame near the usual balling machine, which is fed with the yarn from one or more beams, passing through an eye or eyes in a cross rail, then under and over guide pulleys, and then it is wound in a ball in the usual manner."

[*Printed*, 1*s*. 2*d*. Drawings.]

A.D. 1864, July 6.—N° 1678.

RATCLIFFE, Ephraim, and AINSWORTH, Christopher.—"This invention relates to the treadles of looms for weaving, " and consists in constructing such treadles of two parts with a " double boss, one boss carrying the treadle and the other boss " having a short arm cast thereto, in which arm and in he treadle " is a slot hole and bolt. On the inner face of the boss carrying " the treadle and on the inner face of the boss of the arm are a " number of indentations and teeth, so that the two may by " means of the bolt above-mentioned be securely held together. " The boss and arm work on a stud fixed to a cross rail; the " treadle may, by means of the bolt, indentations, and teeth, be " readily fixed to the said arm at any angle, by which means" the patentees "are enabled greatly to shorten the treadles and " obtain different lifts with one and the same tappet or set of " tappets, and thus regulate the shedding as desirable."

[Printed, 8*d*. Drawing.]

A.D. 1864, July 9.—N° 1712.

WEBSTER, John.—"This invention relates to means of forming the selvedges or edges of fabrics when weaving two or more " pieces of fabric side by side in the same loom; and the improvements consist in the application of instruments which are " actuated by the movement of the loom to cut the weft thread " or threads betwixt the two fabrics, and to draw or push the " ends into the next shed, one end into each piece respectively, " consequently forming a loop of each thread of weft around the " edging threads of the warp, each of the ends being turned into " and secured in the fabric."

[Printed, 10*d*. Drawing.]

A.D. 1864, July 11.—N° 1716.

STUTTARD, David.—(*Provisional protection only.*)—"Improvements in looms for weaving." These "improvements are " designed for the purpose of relieving the warp or yarn of any " tension, only when the slay is beating up." "Connected to " and running parallel with the ordinary guide bar of the loom is " a bar or rod, from one end of which projects a lever in con-

" nection with the slay of the loom. The yarn on its passage to " the healds is left slack or without tension until the slay is finally " beating up the weft, at which time the afore-mentioned bar or " rod in connection with the slay is caused to exert a pressure " against the yarn, giving it sufficient tension to produce a perfect " cover upon the manufactured cloth."

[Printed, 4*d*. No Drawings.]

A.D. 1864, July 12.—No. 1735.

BÖSCH, ADOLPH.—(*A communication from Max Baumstark*)— " This invention has for its object improvements in the manu- " facture of window blinds. For these purposes very slight thin " rods of wood of a cylindrical or other transverse section are " used, which are woven together as weft by means of warp " threads at intervals leaving the intermediate parts without " warps. In weaving the fabric for these blinds, sheds are, by " preference, opened in the warp by what is technically known as " cross weaving; the slight rods of wood are introduced and tied " or bound, and held tightly in between the warps.

[Printed, 8*d*. Drawing.]

A.D. 1864, July 19.—Nº 1803.

MAYNES, JOHN.—" Certain improvements in looms for weav- " ing." The improvements relate, first, to an arrangement of self-acting apparatus whereby the patentee is enabled " constantly " to supply the shuttle box with new cops when the old ones are " spent, or when the weft becomes disunited, without stopping " the loom."

" The ordinary holder of the weft fork is fixed to a lever work- " ing on a fulcrum suitably situated on the breast beam when at " rest; this beam is caused by weights or other equivalent to lay " near the slay, and is supplied with a catch or pawl, one end of " which projects, allowing the hammer of the weft fork when the " weft becomes disunited to strike [and force the said catch " back, so causing the weft holder and its lever to be drawn back " from the slay, thereby drawing back a rack lever upon which " the afore-mentioned pawl catch rests. The distance this lever " is forced back with each break in the supply weft is only one- " third of the distance that is required to stop the loom; rest- " ing upon this rack is a catch which retains it in the position

“ obtained, but should the second or third backward action of the
“ weft hammer strike a projection on the pawl (the weft being then
“ complete) instead of the pawl, the rack becomes released, and
“ assumes its first position. Upon the end of this rack lever is
“ suspended a weighted pendulum, which is in connection with
“ one end of a catch lever, raising and keeping such lever out of
“ contact with a ratchet wheel fixed to a shaft on the slay of the
“ loom so long as the weft is united or continuous, but should
“ the weft break, the afore-mentioned pendulum lever releases
“ the catch, and allows it to act upon a ratchet secured upon the
“ slay shaft, so causing it to give the said shaft with each beat up
“ of the slay one-fifth of a revolution so long as the catch is disconnected
“ from the pendulum, the intermittent action of this
“ shaft on the slay being for the purpose herein-after mentioned.
“ Upon the opposite end of the slay shaft are secured two cams
“ which act upon two vertical rods in connection with a series of
“ shuttle boxes in the following manner:—The bottom shuttle
“ box receiving the working shuttle is, in the event of the weft
“ breaking, lowered by the cam and vertical lever through the
“ medium of the afore-mentioned apparatus, bringing a second
“ box in position to receive the empty shuttle; another fifth turn
“ of the cams then raises the box with the empty shuttle, and
“ places another box supplied with a complete cop in the line
“ of throw ready to be acted upon by the picker; immediately
“ this takes place, and the shuttle has left the box, the second
“ cam brings the original bottom box into position to receive the
“ fresh shuttle, and so continues in that position until acted upon
“ in the afore-mentioned manner by breaking of the weft or stoppage
“ of supply from the cop being spent. The division or
“ compartment containing the spent shuttle is by another action
“ of the cam raised above the slay, so that a second picker”
“ forces the empty shuttle from such division of the shuttle box
“ into a receptacle fixed upon the slay ready to receive it. This
“ receptacle is held between two uprights fixed to the slay and
“ hung from the framing, so that as the slay is beat up the receptacle
“ or shuttle holder is elevated between the uprights, and
“ so delivers the empty shuttle and receives a shuttle supplied
“ with a complete or examined cop, which is immediately placed
“ in position and delivered back to the afore-mentioned receptacle
“ or box ready to be placed in position when acted upon
“ by the afore-mentioned mechanism.” Mechanism is applied

for stopping the taking-up motion during the changing of the weft.

Secondly, the improvements consist in the employment "of "grooved cams working in lieu of the crank on the ordinary "crank shaft; the groove of this cam actuates a bowl or stud "fixed to the slay, causing it to beat up twice with each revo-"lution of such grooved cam." This part of the invention is disclaimed in the final Specification.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1864, July 23.—No. 1839. (* *)

BROOMAN, Richard Archibald.—(*A communication from La Société Joaquin Arimon Passarell and Company.*)—(*Provisional protection only.*)—"A new process for treating hemp, flax, and the "waste therefrom, in order to substitute such matters for cotton."

"1st. I reduce the matter, hemp, or flax into short lengths by "cutting or otherwise as now practised; 2nd, I subject it to boil-"ing in a caustic alkali; 3rd, I bleach it; and 4th, I separate "the fibres, card them, draw, spin, and weave in the same "manner as is ordinarily followed in treating cotton."

[Printed, 4*d*. No Drawings.]

A.D. 1864, July 25.—N° 1848.

RAMSDEN, John Carter.—"Improvements in reeds and "healds used in weaving." The patentee says:—

"My improvements consist in the application of india-rubber "or similar elastic material and spiral springs to the formation "of the ribs in reeds or slays, and to the selvage or rig band of "healds or heddles used in weaving."

"I obtain india-rubber in lengths of the requisite thickness, "and insert it at full stretch inside the springs, which are placed "on a table or frame at a proper distance from each other; the "wires or dents of the reeds or the threads of the healds are "then inserted between the turns of the wire which form the "spiral springs, then on the top of these dents or threads (as the "case may be), inside the spiral springs, I insert either another "length of india-rubber or a length of wire to keep them in "a proper position and from falling out. When I have inserted "the requisite number of dents or threads I then release the india-"rubber from its stretch, when it at once contracts and fills up "the internal space of the spiral spring, and thereby locks or "fastens the dents or threads when they are placed."

[Printed, 4*d*. No Drawings.]

A.D. 1864, July 26.—No. 1862.

BODMER, Louis Rudolph.—(*A communication from John Hegnauer.*)—"Certain improvements in self-acting mules, parts "parts of which improvements are also applicable to looms for "weaving and to other purposes."

"This invention relates, firstly, to that part of the self-acting "mule known as the cam shaft motion."

"Secondly, to the carriage drawing in motion, which ought to "begin and end gently and smoothly, and to be rapid between "the beginning and end. This object is attained by a combination of eccentric spur wheels, which are disposed as follows:— "On the shaft of the drawing-in movement is placed a spur "wheel adjustable on a plate, and capable of being brought more "or less out of centre. This wheel gears into a second wheel, "which is kept in contact and position with the first by means "of connecting levers which connect the centres of the two "wheels. This second wheel likewise gears into a third wheel "fixed on a shaft, and is connected with it in a similar manner. "There is therefore an excentric driving wheel and a concentric "wheel on the second shaft driven by the former through the "carrier wheel, which latter is suspended and supported by the "levers connecting the three wheels. From this arrangement of "wheels it follows that when that portion of the driving wheel "nearest its axle is in contact it will represent and act as a small "crank, and when that portion furthest from the axle is in contact it will represent and act as a large crank. The motion "obtained from this combination is applicable to a variety of "purposes, as, for instance, to the moving of the batten in looms for weaving."

[Printed, 1*s*. Drawing.]

A.D. 1864, July 30.—No. 1899. (* *)

SCHISCHKAR, Edward, and SPEYER, Charles George.—(*Provisional protection only.*)—"Improvements in the formation "yarn for knickerbocker tissues," by "substituting for the parti-

" colored flocks or button of wool, cotton, waste silk, and other " fibrous materials actually made use of for the purpose of forming " a mottled or variegated yarn, feathers, such as eider down, " swan's down, or any other description of down or light feathers," these being incorporated with the materials forming the basis of the yarn during the process of carding.

[Printed, 4*d*. No Drawings.]

A.D. 1864, August 3.—N° 1928.

GEDGE, William Edward.—(*A communication from Jean Wild, and Octave Zindel.*)—(*Provisional protection only.*)—" This " invention consists in the production of a novel fabric termed " 'foulardine,' composed of a warp of spun floss silk (single " thread), woven with a tram or weft of the same material."

[Printed, 4*d*. No Drawings.]

A.D. 1864, August 4.—N° 1942.

RADCLIFFE, James, and RADCLIFFE, Major.—This "invention is designed for the purpose of manufacturing that " description of narrow fabrics known as 'tapes,' 'webbings,' " 'bands,' ribbons,' or such like narrow fabrics, by the employment of one shuttle only." "The weaving is effected in the " ordinary manner, the warp and weft being employed as in weaving calico, or other fabric (or if preferred the warp may extend " from back to front as usual, and the weft be thrown across " diagonally to the warp); but instead of weaving an entire " fabric across the loom the selvedge is formed, by well-known " means, in many places across the width, thus dividing the fabric " into a series of bands jointed together by the combination of " the weft threads."

[Printed, 8*d*. Drawing.]

A.D. 1864, August 6.—N° 1959.

EDMONDSON, Richard.—This "invention relates to a peculiar construction and arrangement of healds for weaving, and " consists in forming such healds of thin strips of metal or other " suitable material, such strips having holes or hooks at each end, " and an oval or oblong hole in the middle for the warp thread " to pass through. In forming a leaf of healds, a series of these "thin flat strips are secured to rods or bars (corresponding to the "shafts of common healds) by means of elastic cords or elastic "springs, so that each strip can give way to any undue strain "that may be put upon it. The broad side of the strips are "placed in a line parallel with the warp threads."

[Printed, 8*d*. Drawing.]

A.D. 1864, August 9.—N° 1976.

SPEIRS, DAVID, BOYD, ALEXANDER, AITKEN, JOHN, and GILMOUR, MATTHEW.—These improvements are designed "more particularly to promote the weaving by power of figured "fabrics of and similar to the 'Paisley shawl' class, and being "in connection with some of the arrangements described in the "Specification of Letters Patent dated 22nd February 1862 (N° "427), and granted to James Kirkwood, and in the Specification of "Letters Patent dated 29th August, 1863 (N° 2138), and granted "to David Speirs, Alexander Boyd, and James Kirkwood.

"By the present invention the heddle leaves for producing the "twill are actuated by the main cylinder and lift board of the "jacquard apparatus, which acts on the figuring harness. The "cylinder has as many sides as there cards in a bridle, and the "number may be varied, but for convenience will be assumed to "be seven. The part of the cylinder acting on what may be "termed the heddle needles has the proper holes for the purpose "formed in its surface, thus dispensing with separate cards or "plates whilst, as in 'twice drawing,' a different action is required "when going over a bridle of cards the second time, the front "ends of the needles or of some of them are passed through a "sliding plate, by which the needles are shifted a little up or "down to make them face different parts of the cylinder sides, "which last are of course holed to suit the different actions "required. The sliding plate is shifted by the jacquard apparatus itself. For depressing each of the heddle leaves in succession there is a shaft with a wiper or cam on it for each "heddle lever, and at the end of each run of shots this shaft is "turned a part round by means of a lever and pawl acting on a "rachet wheel on it, and acted upon by the jacquard apparatus. "The proper heddle leaf is thus held down during the run of "(seven) shots, whilst it is released by the turning of the cam "shaft to put down the next leaf, being then drawn up to the mid

" position by a spring above. When a heddle leaf is depressed, " the button or knot on its wire or tail is drawn down below " the lift board of the jacquard apparatus, but on the release " of the leaf the spring draws the button or knot up again to the " level to be caught by the lift board for being raised thereby at " the proper time."

" Rotating shuttle boxes are used, being connected by pitch " straps or chains to pulleys on a shaft extending across the " loom and mounted on the lower parts of the lathe swords. The " details for turning the boxes are by preference applied to the " shaft below, and a foot lever is provided whereby the attendant " can relieve the hammer and turning catch when adjusting the " boxes by hand; or the turning catch may be relieved by means " of a separate rod or cord. The shuttle boxes may be arranged " for picking either from the front side or from the top; when " arranged for picking from the top, each shuttle cell is provided " with a protector or swell lever, which is set in a cavity cut " obliquely between the two cells, and so that its outside projects " beyond the outer surface of the shuttle box in order to act on " the protector lever, which last is curved over into a suitable " position. The pressure of the protector lever is taken off at the " time of throwing the shuttle by the riding of the dog or catch " over a projection whereby it is lifted up. There is a weft fork " at each side of the loom, and each fork has attached to it a " cord in connection with the heddles, whereby it is turned com- " pletely down out of the way when the shuttles are passing from " its side and its action is not needed. To keep all the threads " but the last one thrown out of the way of the acting weft fork, " a jointed finger is made to rise up through a hole in the lathe " or race in front of the line of the shuttle, and at the beat up " this finger tumbles forward and presses the previously thrown " wefts down clear of the forks. In connection with the forks, " arranged as herein-before described and with the tumbling " finger, or in connection with the improved fork only, a lifting " finger may be arranged to lift up the last weft thrown to be " more certainly in the way of the fork, such finger when not " lifted being in a groove cut across the race. When picking " from the top of the shuttle box, 'the top cone picking motion' " may be used, being arranged so that the vertical shafts are " actuated at both sides at every stroke. The upper part of each " *shaft* carrying the picking stick or lever is connected to the "lower part by a common clutch, and when not required to pick "is lifted out of gear by rods and levers actuated from the jac- "quard apparatus or heddle movements."

[Printed, 10*d*. Drawing.]

A.D. 1864, August 9.—N° 1980.

NORTON, JAMES LEE, and AINSWORTH, WILLIAM.—(*Provisional protection only.*)—"This invention has for its object im- "provements in looms for weaving, and relates, first, to an "arrangement for working the leaves of the heddles and for "changing the order of succession in which the leaves of the hed- "dles are to be moved when producing various patterns of "weaving in the same fabric. For this purpose a lever is em- "ployed at the top of the loom, and in the middle thereof "over the centre of the fabric which is being woven. It is at its "fore end jointed to a bracket from the frame, the joint being "vertically or nearly so over the line to which the batten beats "up. At its hinder end, near the back of the loom, this lever is "jointed to a rod passing through and between the warps, and at "its lower end receiving motion from another lever and a cam on "the tappet shaft; thus the lever at the top of the loom is caused "constantly to vibrate or move up and down on its centre. The "top cords of the leaves of healds are attached to hooks, and by "means of a pattern surface these hooks can be selected so as to "bring or leave such of them as correspond with the leaves of "the healds which it is required to lift over the lever so as to "catch on to it at its upward motion."

"The invention also relates to mechanism for actuating change "shuttle boxes; for this purpose a star wheel mounted on an "axis on the frame is employed; this wheel (which is not in itself "new) is a polygon of as many sides as there are compartments "in the change shuttle box; the sides of the polygon are concave, "and made so that they will fit to the circumference of a cylinder "(made double, as herein-after described,) which is also mounted "on an axis on the frame close up to the star wheel, so that the "cylinder locks the star wheel and prevents it revolving. The "cylinder is divided mid-way of its length into two parts, and "the two parts are caused to revolve in opposite directions. The "star wheel is capable of being traversed along this cylinder, and "when it is moved towards either end it meets a hole in the peri- "phery of the cylinder which allows the star wheel to turn, and

"at the same time a pin or tooth on the end flange of the cylin-
"der enters a notch in the star wheel and turns it; there is a
"notch formed in the star wheel to receive the pins or teeth for
"turning it at each of the angles of the polygon. When the
"star wheel is traversed up to the end of the double cylinder in
"either direction, in addition to the first pin or tooth, which acts
"to turn it, as already described, it meets a second shorter *pin* or
"tooth, which by entering another of the notches in the star
"wheel turns it another, that is, a second step, the hole in the
"periphery of the cylinder at this part being sufficiently long to
"allow two of the angles of the star wheel to pass; thus it will
"be seen that the star wheel will remain stationary so long as it
"is retained at about the centre of the double cylinder, but that
"when it is slid to either end it is moved at each revolution either
"one or two steps, according to the distance to which it is
"slid, and these steps will be made forward or backward accord-
"ing as it is moved towards one or other end of the cylinder.
"Similarly the apparatus may be arranged to give three steps
"either forwards or backwards, if desired."

[Printed, 4*d*. No Drawings.]

A.D. 1864, August 10.—Nº 1988. (* *)

ARMISTEAD, HENRY.—"Improvements in dyeing and sizing "or preparing warps for weaving." It is stated that "heretofore "the dyeing of yarn for warps has been effected either in the "hank or chain, and the warping, sizing, dressing, and beaming "done afterwards," and these "improvements consist in, first, "warping, dressing, and beaming, and then subjecting them to "the processes of dyeing and sizing in the web, or in passing "single ends or threads side by side through the several machines "required for one beam or bobbin to another ready for the loom. "By this means more level or even dyeing is obtained, and the "warps are better sized or prepared for the weaving." This is effected by introducing "any desirable number of boxes or dye-"ing vessels in betwixt the yarn beams (or the bobbins supplying "the yarns) and the sizing box of the ordinary sizing or 'tape' "machine with suitable appliances and arrangements for driving "the whole simultaneously," and by means of a carrying roller and a raddle or reed, "the yarns from the several yarn beams "(which may be in any desirable number according to require-"*ment)* are caused to enter the dyeing boxes in single ends or "threads side by side, passing through the dye liquor (which may "be of any usual ingredients, such as used are by dyers);" and by means of arrangements "for raising and lowering the con-"ducting rollers of the dye vessels, any desirable number of "immersions may be given to the yarns in passing through the "several dye vessels, according to the particular colour or shade "of colour required to be obtained." "The yarns then pass "through the sizing box and in contact with the brush," thence over drying cylinders, and being conducted by rollers pass under and over leash rods, and through another raddle or reed to the warp beam ready for removal therefrom to the loom.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1864, August 11.—N° 2003. (* *)

ADAM, JOHN, WEBB, JOHN, and MONTEIRO, JOACHIM JOHN.—"Improvements in the application and in the prepara-"tion of certain fibres for the production of paper and textile "fabrics."

These fibres are obtained from the bark of the "adansonia "digitata." The inner bark only is used, which is dried (if desirable), and then passed between rollers, or through other machinery, for the purpose of disintegration, and in order to free the material from sap, gum, or other matters. The fibres are then washed, an alkaline solution being used if thought requisite, and may then be bleached in the same manner as "cotton or other "fibres." For the manufacture of paper this material may be mixed with other substances, or used alone, as may seem most desirable. For textile purposes the fibres are operated upon by rollers, beaters, or other machinery of suitable character, after having been thoroughly separated from the other matters with which they were originally associated, and may then be employed either alone, or, "by preference, with the admixture of other "fibres."

[Printed, 4*d*. No Drawings.]

A.D. 1864, August 15.—N° 2032. (* *)

COLLINS, SIDNEY, and COLLINS, CHARLES.—"An im-"proved method of producing silk floss adapted for being woven "and spun into articles of use."

"The following is an example of the means by which silk floss "may be produced according to this invention :—We com-"mence by separating the silk rags, waste, or refuse, according to "their color, keeping each color distinct and separate, or if "desirable we work them mixed together; we then proceed to "place them in a brake for the purpose of shredding or tearing "them asunder; we then operate upon them with a carding engine, "and afterwards bleach them by any convenient and suitable "means, or dye the silk thus operated upon of any desired color. "By these means we utilise waste silk, which at present is nearly "useless, being principally used as a manure, and convert same "into a commercially valuable article capable of being made into "silk twist, silk for hats, dresses, and various other useful pur-"poses at a greatly reduced price; or the silk thus produced may "be mixed with jute, cotton, wool, raw silk, and various other "fibrous substances."

[Printed, 10*d*. Drawing.]

A.D. 1864, August 16.—No. 2039. (* *)

DARCAGNE, CHARLES FRANÇOIS.—A mode of treating the "sorgho" plant in order to render the fibres thereof applicable for manufacturing purposes.

The patentee says :—"I steep or soak the plant either in its "green or dry state (until it becomes soft) in a vessel containing "salt water, without the use of other chemical agents. I then "proceed to cut the branches or paniculæ of the plant into pieces "in a machine similar to a chaff-cutter; these parts of the plant "form a material similar to hemp, and the body or main stem, and "likewise the leaves of the plant, and the refuse therefrom after "it has been combed, are suitable for pulp to manufacture into "paper. I next proceed to place the pieces of fibre in a double "cylinder (formed with flutings or channels) working in opposite "directions, and afterwards remove and comb it in a combing "machine; the fibres are then washed in tepid water, and are "then ready to be manufactured as may be desired." "In pre-"paring the fibres for weaving I further bleach them by placing "them while wet in a close chamber in which I burn sulphur; "and, lastly, to render the fibres soft, I place them in a bath of "soapy water."

[Printed, 4*d*. No Drawings.]

A.D. 1864, August 19.—N° 2062.

KREUZ, Freiderich.—" This invention relates to certain im-
" provements in the manufacture of crinolines, dresses, and
" mantles, and other articles of wearing apparel, such as petti-
" coats or skirts, whereby these articles are made in one piece, and
" of the requisite taper or conical form in a loom, the pattern or
" stripe also consisting of a tapering outline, the widest part being
" at the lowest part of the crinoline, dress, skirt, or mantle."

" It is necessary to state that the shuttle travels completely
" across the warp and back at each shoot, but that separate
" portions of such warp are successively brought into action by
" the jacquard and harness, so that the shoots of the weft thread
" gradually enter the entire width of the warp, and thus form a
" fabric which tapers in pattern, and is wound off by conical take-
" off rollers instead of cylindrical rollers, as in ordinary looms.
" The fabric when delivered from the loom assumes a curvilinear
" outline, and if continued to a sufficient length would form a
" complete circle or ring. It is cut into proper lengths and the
" edges sewn together, so that there is only one seam, and the
" articles need not be pleted on account of its tapering form; the
" pockets for the hoops are also formed in the loom."

[Printed, 10*d*. Drawing.]

A.D. 1864, August 22.—N° 2071.

HARRISON, Charles Weightman. — " Improvements in
" looms for weaving." The patentee says:—" My invention
" relates, firstly, to improvements upon my invention for work-
" ing shuttles in looms for weaving by the direct action of com-
" pressed air, for which Letters Patent were granted to me the
" 18th November 1862, Number 3097. These improvements
" consist in fixing at each end of the lathe a box or case of any
" convenient form, and furnished with a nipple or socket and
" valve which opens into the shuttle box. The valve is worked
" by levers and spindle, or other suitable contrivance which may
" be made adjustable, so as to regulate the extent of opening in
" the valves, motion being imparted by a swell or inclined stud
" fixed on the side of a cogged wheel driven by a pinion on the
" crank shaft. I fix a buffer of leather, vulcanized rubber, or
" other like suitable material at the end of the shuttle box around
" the opening in the nipple, and I make it in the form of a hollow

" cone, into which the end of the shuttle fits. I connect the " detector fork with a tap or valve, so that it will shut off the " supply of air when the weft is broken. The pipe for conveying " compressed air to the valve boxes at the end of the shuttle boxes " is carried in a groove or recess in the lathe, and the main or " service pipe is placed in the back pass with a branch pipe to " each loom.

" My invention consists, secondly, in regulating the delivery " of the warp from the warp beam by the pressure of a break " actuated by compressed air.

" The third part of my invention consists in an arrangement " for working the heddles by means of a cam fixed on a short " shaft near the side of the loom. This cam gives motion to a " slotted rod which is connected to a T-shaped slotted lever that " works the treddles."

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1864, August 23.—N° 2081.

BROWN, David Shaw.—(*Provisional protection only.*)—" Im- " provements in the manufacture of lint, and in machinery em- " ployed therein." The inventor says:—" Hitherto it has been " the practice to make lint at two operations, that is to say, the " fabric is first woven, and then the fabric is subjected to the " action of a knife to scrape up the fluffy surface thereon. Now " the object of my present invention is both to weave the fabric " and form the fluffy surface at one operation.

" I take any loom or machine for weaving, but by preference an " ordinary calico loom, and apply thereto a knife or knives, and " a shaft or harness working a false or imitation warp consisting " of fine wires for the purpose of assisting or lending strength " to the warp proper of the fabric being woven, or the false warp " may consist of fine knives for severing the weft between the " threads of the warp; the ends of weft so severed are thrown to " one surface of the fabric, and are teazed to bring up a fine fluffy " surface. Some shoots of weft are left undivided to hold the " fabric together."

[Printed, 6*d*. Drawing.]

A.D. 1864, August 29.—No. 2124. (* *)

BROOMAN, Richard Archibald.—(*A communication from Jean Gaspard Placide Meyer.*)—(*Provisional protection only.*)—

" A new thread, and the manufacture therefrom of fabrics and " ornaments, particularly applicable to bonnets, caps, and hats."

"This invention consists in manufacturing a new thread from " esparto or other vegetable or woody fibre, and in making with " this new thread fabrics, plaits, and ornaments for bonnets and " other purposes." To form the new thread thin strips or " cores," of wood or vegetable or woody fibre are covered with a thread of cotton, silk, or other suitable material "of any desired shade," such thread being then "woven to form a fabric suitable, among " other purposes, for bonnets" and similar articles. To "vary " the appearance" of these articles the fabric employed may be formed of a warp of the esparto thread, and a weft of any other textile material. Plaits may also be manufactured from these esparto threads, "the design or effect of which may be varied as desired " by mixing different colored threads," and ribbons and ornaments may be also made of this material, "the threads being " all of the same color or of different colors, or mixed with threads " of other material according to the effect to be produced."

[Printed, 4d. No Drawings.]

A.D. 1864, August 30.—N° 2133.

HARRISON, Charles Weightman. — "Improvements in " looms for weaving." The patentee says :—"This invention " relates, first, to additional improvements upon my invention for " driving shuttles in looms by the direct action of compressed " air, for which I obtained Letters Patent on the 18th November " 1862, No. 3097.

" The present improvements consist in dispensing wholly or in " part with a main pump and pipes to condense and convey air " under pressure to looms, and instead thereof to make each " loom condense its own air, and thus be self-supplying or nearly " so. One mode by which I effect this is to attach a lever to " each side of the loom, and to connect one end thereof by an " arm to the lathe or its sword, the other end of each lever being " connected with the piston rod of an air pump fixed to the loom " side."

" This invention, relates, secondly, to improvements in the construction of the shuttle boxes in looms, and consists in forming " an interior movable case or slide which fits air-tight or nearly so " within the box, and is free to move a sufficient distance to

" throw the shuttle along its race whenever a jet of air, steam, or
" other vapour is made to act upon such slide or case. The air
" or vapour may be conveyed away in a waste pipe.

" And, thirdly, this invention consists in causing the shuttle in
" looms to be driven by atmospheric pressure. For this purpose
" I form an exhaust box or chamber at each end of the lathe,
" and by suitable arrangements, either through a main exhaust
" pump operating a number of looms, or by an exhaust pump or
" bellows on each loom, I withdraw air from the chamber, and at
" the proper moment for driving the shuttle re-admit air by the
" opening of a valve."

[Printed, 8*d*. Drawing.]

A.D. 1864, August 31.—N° 2135.

BULLOUGH, William.—These improvements relate to the letting-off and taking-up motions of looms. The patentee gives " a positive letting-off motion to the roller around which the " warp passes on leaving the warp beam by means of a tappet " acting on a lever, which gives motion to another lever having " a catch taking into a ratchet wheel which is fast to a worm " gearing in a wheel on the axle of the said roller. The taking-" up motion is also worked from the tappet lever above referred " to, a link from which works the catch of the usual ratchet " wheel for driving by a pinion and wheel the cloth roller. This " cloth roller is allowed to vibrate by a coiled spring, one end of " which is fast to the axle of the roller, and the other is connected " by a pin to the driving wheel, which is loose on the axle. The " motion of the cloth roller is governed, according to the diameter " of the cloth wound on it, by a rod pressing on the cloth and " acting on the point of connection of the link from the tappet " lever. The tension of the cloth is given by a weighted lever " acting on the rod pressing on the cloth. Or the roller around " which the warp passes and the cloth roller may be driven by " worms on a side shaft and worm wheels, one of the worms being " loose on the shaft, but connected to it by a friction apparatus."

The last part of the invention " consists of an improved appa-" ratus to protect the selvage of the cloth. To the ordinary fixing " of the temples or to any other convenient fixing is attached the " fulcrum of a double lever, one arm of which is worked by the " *lay* sword or other moving part of the loom, and the other arm,

" which is bent down and is pointed, enters at every pick into the " warps near the selvage. The weft is doubled round this pointed " lever, and if the weft catches on the cop, the strain is put on " the point of the lever instead of on the selvage, as now custo- " mary."

[Printed, 10*d*. Drawing.]

A.D. 1864, September 9.—N° 2201.

SHORROCK, John, SHORROCK, Ralph, and MOULD, William. — (*Provisional protection only.*) — " Improvements in " looms for weaving." This invention relates to " a positive " taking-up motion." The ordinary train of wheels for winding the cloth upon the cloth roller are actuated by a broad fine-toothed ratchet wheel and a forked lever carrying a number of catches of different lengths. The ratchet wheel is prevented from slipping back by a number of catches on a fixed stud. " The " object of these catches and fine-toothed ratchet wheel is to " make the motion very sensitive." The fork lever and catches obtain their motion from a pin in the fork lever taking into a slot in " a pendulum " which is worked from the lay sword. As the cloth roller increases in diameter it raises a metal rod to which is attached a rack, which by means of a " toothed beam " and another rack lowers the fulcrum of the pendulum and brings it nearer to the pin in the fork lever, and thus decreases the motion of the fork lever and catches.

[Printed, 4*d*. No Drawings.]

A.D. 1864, September 10.—N° 2215.

HOLDING, Joseph.—This " invention relates to that portion " of the power loom termed the slay, and to that part thereof " over which the shuttle traverses and the warp threads pass.

" The improvements consist in the employment, use, and " adaptation of a plate or strip of glass or smooth vitreous sub- " stance inserted in the upper surface of the slay, such strip " being secured thereto by adhesive cement. The employment of " glass instead of the ordinary surface of wood creates less fric- " tion between the shuttle and the slay and also between the slay " and the warp passing over it."

[Printed, 8*d*. Drawing.]

A.D. 1864, September 13.—No. 2232. (* *)

HIGHAM, **Eli**, and KIRK, **Robert**.—"Improvements in "machinery or apparatus employed for making or knitting "healds."

This invention consists, firstly, in effecting the "pushing off" movement by means of a cam or tappet "fixed to the rim of a gear "wheel working on a disc attached to the inside of the frame end "of the machine, and carrying the finger and knitting bobbin," instead of employing the levers and cranks ordinarily used for this purpose.

Secondly, in effecting the traverse and retraverse of the frame carrying the needles by means of a lever, one end of which "forms "the segment of a gear wheel," and operates upon a rack connected to the frame, this lever having a reciprocating movement given thereto by a grooved wheel acting upon the contrary end thereof.

Thirdly, in effecting the "taking up" of the work by the employment of a catch connected to the reciprocating lever mentioned above, and operating upon and turning a catch wheel, upon the bosses of which the braiding cords are coiled.

The mechanism may be driven either by a treadle, or by strap pullies in connection with some motive power.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1864, September 19.—Nº 2291.

TOLHAUSEN, **Frederick**.—(*A communication from Henry Traphagen Kerr.*)—(*Provisional protection only.*)—"This invention relates particularly to those looms in which a positive "motion is imparted to the shuttle from one end of the shuttle "race to the other.

"The invention consists in the employment or use of two pegs, "the position of which is governed by a cam on the batten, "either on its front or rear, and either above or below the shuttle "race, and which (pegs) are made to catch at the proper intervals "in holes or sockets in the end of the shuttle in such a manner "that one of the pegs is always in position to act on the shuttle, "and both pegs, while passing the gap in which the shed is "made are depressed by the positive action of the cam, and the

" possibility of having the warp threads disturbed by one of the " peg is prevented."

[Printed, 4d. No Drawings.]

A.D. 1864, September 19.—N° 2296.

FLUDE, ROBERT.—(*Provisional protection only.*)—" Improvements in weaving ribbons and other narrow fabrics, and in " looms or apparatus for the same." The inventor says:—" The " chief point in which my improved method of weaving narrow " fabrics differs from those commonly adopted is that the operation of weaving is performed in a vertical position, that is to " say, the shuttle is disposed with its length in a vertical direction, and moves up and down through the shed, the breadth of " the warp being necessarily in a vertical direction also. In working one shuttle to each piece I prefer to divide the warp into " three parts, one of which remains stationary and forms two " sheds at each crossing of the thread. The sheds being formed " the shuttle is elevated through one of them, so that the lower " end is just above the warp threads. The batten is then caused " to move slightly, whereby the shuttle is carried off the lifter " and over the next shed, through which it falls immediately. " The elevator being lowered at the same time is ready to receive " the shuttle, so as to repeat the same motion."

[Printed, 4d. No Drawings.]

A.D. 1864, September 20.—No. 2306. (* *)

WILKINSON, WILLIAM.—" Improvements in the manufacture " of threads or yarns applicable for weaving into fabrics, cordage, " and other purposes, and in machinery appertaining to a part " thereof."

This invention consists, firstly, in " cutting and dyeing fibrous " or filamentous materials to a required length of staple, and subsequently carding and spinning such fibres into threads or " yarns." Among the materials mentioned are silk and flax, wool and silk, or alpaca and wool, which are mixed in various proportions after a cutting operation has reduced or equalized the fibres. If a white thread is required the fibres are washed and bleached before being spun. Hemp, jute flax, tow, and cocoa-nut fibre are also cut and dyed before being carded and spun, and then used in the manufacture of carpets, rugs, and other heavy fabrics. The fibres spun together may be all of one colour, or different colours may be united in one thread.

Secondly, "in the manufacture of threads suitable for all kinds " of weaving, such thread having a core or centre of cotton or " other cheap material, or it may be of india-rubber or caout- " chouc if an elastic thread or cord is required, and an exterior " of silk or wool or other suitable filamentous material." In carrying out this part of the invention a hollow spindle is used, through which the core thread is passed, this spindle carrying a disc on which bobbins or spools are mounted containing the material for covering the core. The latter does not rotate, but is gradually drawn upon a measuring cylinder as the work proceeds. A number of these spindles and discs are disposed in one machine, " in the manner of a spinning frame."

Thirdly, in manufacturing a thread of a combination of flax and alpaca, dyed while in a fibrous state, and then scribbled and carded together. Alpaca and silk, or cotton and flax, may be substituted for the flax and alpaca.

Fourthly, in spinning a thread from hemp or other material dyed in a fibrous state, such thread being then stretched between a twisting apparatus and a swivel and caused to rotate, thus being made to coat itself with a film of wool, a sliver or fleece of which is placed in contact with it. This thread is mentioned as being very suitable for the backing of carpets. The wool may be of the same colour as the core thread, or of a different colour.

Fifthly, in manufacturing a thread of wire and fibrous material, the wire forming a core round which the fibrous material is twisted, this compound thread being used for window blinds, trimmings, and "theatrical purposes."

Sixthly, in coating a core or central thread with chenille, which may be of the same or different colours; or the chenille may be mixed with braid or cord, silver or gold wire, or strips of silver or gilt material.

The invention is described in minute detail. Several modes of covering cores or central threads with other materials are described as being effected in lace machines and in knitting frames, and various uses to which the compound threads thus formed may be applied are mentioned. Printed threads are also mentioned as being in some cases employed.

According to the Provisional Specification another part of the invention consisted in the manufacture of a thread from waste silk, and old silk which has been torn up, the silk fibre being dyed before being spun, but in the Final Specification this part of the invention is not noticed.

[Printed, 1*s.* 10*d.* Drawings.]

A.D. 1864, September 27.—N° 2370.

BROOMAN, Richard Archibald.—(*A communication from Samuel Maynard.*)—"This invention consists in the construction "of skirt hoops, each of two or more narrow strips of steel or "other metal, arranged edge to edge, and united by braiding "or weaving them together with cotton or other fibrous "material."

"It also consists in a certain combination of such hoops with "tapes or straps and metallic clasps, by which a strong and "durable skirt is produced."

[Printed, 6*d.* Drawing.]

A.D. 1864, September 28.—N° 2380.

WHITEHEAD, William. — "Improvements in looms for "weaving." "The improvements relate to means for regulating "the number of picks of weft in weaving by governing the action "of the letting-off motion. For this purpose the cloth roller is by "toothed gear connected to a worm on one end of a sliding "shaft, upon which is affixed, but so as to admit of its sliding "through it, a ratchet wheel the teeth of which are taken into by "a click or driver acted upon by a tappet to give rotary motion "to the sliding shaft. To the other end of this sliding shaft is "affixed a grooved roller embraced by a forked lever capable of "being governed by the motion of the sliding shaft. This forked "lever is affixed to a shaft, which by levers and connecting rods "is connected to a rod with a wedge-formed end passing "into a loop or connecting rod connected to the tomahawk "lever."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1864, September 29.—N° 2402.

HARRINGTON, George Henry, HEWETSON, Henry, junior, and HEWETSON, Francis Yates.—"Improvements "in preparing threads and yarns to be employed in the manufacture of sail cloth." The object of this invention "is to prevent sail cloths from rotting, and also to increase their durability." The invention "consists in applying to threads and yarns used in the manufacture of sail cloth, whether by steeping or otherwise, and prior to their being woven, a mixture of the following ingredients, and in or about the proportions stated:—112 lbs. catechu, 112 lbs. ochre, 40 lbs. oil or fat, 2 gallons of tar, boiled in 400 gallons of water, and the whole thoroughly mixed." The patentees "sometimes employ other similar tanning mixtures."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 1.—N° 2416. (* *)

HANDS, Richard Medwin.—(*Provisional protection only.*)—"Improvements in machinery or apparatus for dressing, finishing, and lustring yarns and threads of silk."

This invention relates to the application of a machine which has heretofore been employed for dressing and lustring ribbons, for the purpose of performing similar operations upon threads or yarns of silk.

"In applying the said machine or apparatus to the dressing, finishing, and lustring of silk yarn or thread, instead of allowing the yarn or thread on emerging from the sizing or lustring bath to pass over a considerable portion of the surface of the heated revolving cylinder, I cause it to pass first in close proximity to, but not in contact with, a considerable portion of the surface of the same, and then after passing over a wire or roller situated near the said cylinder I cause it to come in contact with a small portion only of the surface of the latter, whereby the sizing or lustring material becomes partially dried on the yarn or thread by the heat of the revolving cylinder before the yarn or thread comes in contact with the same, and thus the accumulation of such sizing or lustring material upon the surface of the cylinder is prevented. Instead of winding the yarn or thread upon bobbins, after passing from the last stationary heated cylinder, I wind the same upon skeleton reels, from which it is taken in the form of hanks."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 1.—Nº 2417.

GRIMSHAW, John Smalley.—"Improvements in looms for "weaving." "This invention consists in improved modes of "making the reed fast and loose for the purpose of preventing "breakages when the shuttle is caught in the shed."

The patentee fixes "to one or both ends of the stop rod a small "arm, and to the side or sides of the framework of the loom a "bracket having a projection. When the reed begins to push "up the weft, and before the crank is at the front centre, the "lower end of the small arm affixed to the stop rod comes in "contact with the lowest portion of the projection, and slides to "the top when the crank is at the front centre, thereby holding "the reed holder firm, and maintaining the reed in position at "the proper time; when the crank is moving to the bottom "centre the small arm slides down the projection until all contact "between them ceases, but when the shuttle is caught in the "shed, the reed holder is forced out, and the small arm fixed "on the stop rod passes under the projection, and thus no "damage is caused by the shuttle being caught in the shed."

[Printed, 10*d*. Drawing.]

A.D. 1864, October 5.—Nº 2450.

CASTREE, George Henry.—(*Provisional protection only.*)— "The object of this invention is to weave two pieces of cloth at "one and the same operation, each of them to have perfect "selvages, and consists of making the yarn beam of sufficient "dimensions to carry two warps, and the lathe of the loom "constructed to hold two reeds, running in a line from right "to left, and vice versâ, giving a reed to each warp, so that each "warp shall have its separate and independent shuttle or shuttles "working across its own width exclusively, a space being provided with the swells and springs in the centre of the lathe to "act as a box for the reception successively of any shuttle belonging to either warp, the shuttle being propelled from the "said centre box in its proper course and turn."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 6.—Nº 2455.

HUGHES, Edward Thomas.—(*A communication from Etienne Veyrier and Paul Garde.*)—(*Provisional protection only.*)—"This

" invention relates more especially to looms for weaving taffetas
" and similar fabrics, which looms are intended to be worked by
" manual labour or motive power.

"At the lower part of the end frames of the loom there is a main " driving shaft, having in the centre tappets for giving motion " to treddles which move up and down for working the healds. " For giving motion to the picking levers there are two toothed " segments, gearing into pinions fixed to the bottom of the " levers, the segments and levers having motion imparted to them " one way at the exact time required by means of picking cams " on the main shaft placed between the before-mentioned tappets " and the end frames of the loom, and the other way by springs " connected to the picking levers. At the outside of one of the " end frames there is a cam or tappet acting in connection with a " cord passing over a guide pulley for removing the slay or " batten from the beat up of the fabric at the exact time " required."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 10.—N° 2483. (* *)

HANDS, Richard Medwin.—" Improvements in machinery " or apparatus for dressing, finishing, and lustring yarns and " threads of silk, cotton, and other fibrous substances."

This invention relates in the first place to adapting the machine ordinarily used for the dressing of ribbons to the dressing and lustring of yarns and threads of silk, by so adapting the same that the yarn or thread, after passing from the lustring solution, is conducted for some distance in close proximity to but not in contact with the heated revolving cylinder before being brought into contact with the same.

Secondly, to the construction and employment of machinery for dressing, finishing, and lustring yarns and threads of silk, cotton, and other fibrous substances, in which such yarns or threads are caused to pass over the top of a roller not itself immersed in the sizing or lustring solution, but which is in contact with a second roller partly immersed in such solution.

Thirdly, to constructing the heated metal surfaces of copper or tin, for drying and lustring yarns or threads of such colours as would be injured by coming into contact with heated iron surfaces.

The object of the first part of the invention is to prevent improper accumulation of sizing or lustring material upon the surface of the drying cylinder; and that of the second part of the invention is to prevent the yarn or thread from retaining too large a portion of the sizing material.

[Printed, 8*d.* Drawing.]

A.D. 1864, October 10.—N° 2496.

COLLINGE, John.—(*Provisional protection only.*)—"This in-" "vention relates to the manufacture of fabrics used for crinoline, or" "a substitute for crinoline, and consists of introducing a portion" "of strong weft, known as the patent thread, described in the" "Specification of Godfrey Ermen's Patent, dated the seventeenth" "day of June, one thousand eight hundred and fifty-one," "N° 13,670, mixed with the ordinary weft at any convenient" "number of alternate picks." If found desirable the inventor introduces "a mixture of the same patent thread with the" "ordinary warp threads."

[Printed, 4*d.* No Drawings.]

A.D. 1864, October 13.—N° 2529.

COOK, John Thomas.—"This invention consists in adapting" "to the shuttle races of looms employed for plain and figure" "weaving, and for the manufacture of elastic web, certain novel" "and improved mechanism for driving the shuttle."

The patentee describes his invention as follows:—"At the back" "of each shuttle race I adapt a long cylinder having a helical" "groove of quick pitch formed around same; I also fix pins" "in the back of the shuttle at each end thereof; these pins are" "intended to take into the helical grooves in the before-men-" "tioned cylinders, so that as said cylinders are caused to rotate" "on their axes the shuttle will be quickly moved across the" "loom, reversing gearing being employed to produce alternate" "rotatory motion of said cylinders, and reciprocating motion of" "the shuttle to throw it backwards and forwards as desired."

[Printed, 10*d.* Drawing.]

A.D. 1864, October 14.—N° 2532.

GEDGE, William Edward.—(*A communication from Adolphe Ovize and Auguste Côte.*)—"Improvements in power looms." In this loom the batten is actuated by cams. Rotary shuttle boxes are used, which are worked independently of the batten, the changing of the shuttles being governed by pattern wheels. The shuttle boxes carry an arrangement of levers which come in contact with the batten and throw the loom out of gear when the shuttle does not arrive at its destination. The shuttles are thrown by spiral springs. The taking up of the fabric is regulated by a roller resting on the cloth beam, as the roller rises by the encreasing diameter of the cloth beam it causes a sector to cover part of the ratchet wheel of the taking-up motion, and the higher the roller rises the greater the number of teeth withdrawn from the action of the click. The temple consists of an arrangement of four cylinders, two large, and two small, the two small cylinders are of wood and furnished with needles, "the two large ones being of " polished iron, and one of them furnished with a thickness of " flannel into which enter the needles of the small cylinders." An arrangement of weft fork is described which acts at each cross of the shuttle. "Dynamometer apparatus.—The object of this " apparatus is to stop the loom when a warp thread breaks." A lead is suspended to each warp thread, if one of the threads break the lead falls and is carried into a cast iron box which is caused to oscillate and bring into action the stop motion of the loom.

[Printed, 2*s*. 4*d*. Drawings.]

A.D. 1864, October 17.—N° 2561.

BRUCE, John.—(*Provisional protection only.*)—" Improvements " in the manufacture of fabric suitable for sail-cloths, awnings, " tarpaulings, and other purposes."

The inventor says:—" Fabric used in the manufacture of sail- " cloths, awnings, tarpaulings, and other surfaces are made in " comparatively narrow breadths, which are sewn together to the " width or size desired."

" The object of my improvements is to lessen the cost of manu- " facturing such surfaces, as well as to obtain them stronger and " more durable where the seams would be, by weaving the fabric " in wide breadths, or breadths equal to two or more narrow " breadths, yet having an appearance to resemble seams obtained " by the sewing together of narrow breadths, but with greatly " increased durability and strength. For this purpose I employ " looms adapted in width to the width of fabric to be produced,

"; and at convenient distances across the width of the fabric, " where the seams would be formed if made up of narrow " breadths, extra thick and strong warp yarns, corded or other- " wise, are introduced between the ordinary warps, and they are " woven into or upon the fabric, so as to run up and give it the " desired appearance with increased durability and strength."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 20.—N° 2592.

ABLETT, William Henry, and BAINES, John Borlase.—(*Provisional protection only.*)—These " improvements in the " manufacture of woven fabrics, consist in weaving genappe on " a cotton or silk ground in an ordinary loom, so as to produce " the effect of the application of lace placed over a separate " fabric."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 24.—N° 2630.

SMITH, John.—" Improvements in battens and in gear for " communicating the to-and-fro motions to the driving planks of " battens." This " invention consists in fitting levers upon a " plate on the sole of the shuttle, in forming guides upon the " facing boards, and in providing notches in the driving plank, " into one or other of which the levers are made to take in order " to the shuttle being carried across the warp. The levers are " centred upon studs on the sole plate; the long arm of the levers " is bent and carries a friction roller, and a spring acts upon the " short arm to keep the long arm within the shuttle, except when " made to descend into the notch on the driving plank. Upon " the front of the shuttle reaching one side of its work, the fric- " tion roller of the front lever comes in contact with one of the " guides on the facing plate, and is thereby depressed and guided " into one of the notches in the driving plank, whereby the " shuttle is carried forward, then the lever at the back of the " shuttle is forced up out of the other notch in the driving plank " by another guide in the facing plate, and is drawn within the " shuttle by the spring acting on the tail or short arm of the " lever, and the shuttle is carried across the work. On the return " stroke of the driving plank, that which was the back becomes

" the front of the shuttle, and the action is similar to that just " described, and so on."

The " invention also consists in an arrangement of gear for " communicating the to-and-fro motions to the driving planks of " battens." A cam actuates a lever, in the end of which is a slot " carrying an axle and universal joint connected to the driving " plank."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1864, October 25.—Nº 2640.

SHAW, SAMUEL.—(*Provisional protection only.*)—" Improve- " ments in looms for weaving." The inventor says :—" This " invention consists, first, in an improved shedding motion " adapted for working any required number of healds. From " the tappet shaft of the loom, I give motion to a vibrating lever " for giving movement to a set or series of bowls or rollers at " each side of the motion, which bowls act upon the heald levers, " according to the pattern, by means of inclined levers jointed " to the aforesaid heald levers, the inclined levers being acted " upon by fingers or levers worked by the pattern cylinder or " chain, so that when a bowl is at one side of the incline it moves " the heald lever one way, and when at the other side the reverse " way, there being in the heald levers other inclines for enabling " the bowls to place all the levers level, and close the shed after " the shuttle has passed through." " This improved shedding " motion can be worked by jacquard apparatus or other arrange- " ments for givlng the pattern ; but when lags are employed on " a pattern cylinder or chain, I form each lag of a metallic plate, " and place upon it a number of bent springs to act as pegs, the " plates being punched or their edges bent for the purpose of " holding the springs."

" Secondly, I employ improved arrangements for regulating the " action of shuttle box motions. I use one or more metal or " other plates, bars, or levers, having planks or holes similar to " the cards of the jacquard apparatus. The said plates move to " and fro on a moveable frame or carrier, and also slide to " and fro in a reverse direction, according to the pattern, the " blanks giving motion to the rods and levers, which change the " positions of the shuttle box and shuttles, and the holes prevent- " ing any action."

[Printed, 4*d.* No Drawings.]

A.D. 1864, October 26.—N° 2652.

CUNNINGHAM, John, and CUNNINGHAM, Robert.—" This invention relates to the weaving of ornamental fabrics of " or similar to the ' Paisley shawl ' class, and by means of it a " perfect pattern is obtained on both sides of the fabric."

" In practising the invention, the weaving arrangements em- " ployed are such as to produce on each side of the fabric the " ' plain cloth ' texture, known as ' once drawn pressed on two " ' leaves.' In commonly weaving such a cloth, ' single-faced,' " with ' split,' or ' two thread ' harness, the heddles or healds are " made to throw only one half of the warps to the right side, the " remaining warps never appearing on the right side, but being " worked into cloth by the ' ground ' shot, or being ' dumb- " flowered ' by one of the right-side shots. By this invention, " however, the use of a ground shot, or the dumbflowering of a " shot is dispensed with, and the half of the warps thus left free " is used for the other face of the fabric, so that no additional " warps are required for the two-faced fabric beyond what are " ordinarily used for a one-faced fabric. The harness is actuated " by jacquard or other mechanism, so as to produce the figuring " on both faces in a manner which is well understood; but an " important feature of the present invention consists in the mode " of entering the warp threads through the harness mails, through " the heddles, and through the reed. Two warp threads for the " upper face are passed through one harness mail, and two warp " threads for the under face are passed through the next harness " mail. These four threads are entered separately through the " eyes or mails of four leaves of heddles, two for the upper face, " and two for the under face, and are then passed through two " splits of the reed, an upper and a lower thread through each " split; or if the warps are not adapted for so fine a reed, the " whole four threads may be passed through one split. This " arrangement necessitates the crossing of one of the warp " threads under the thread of the adjacent harness mail; and in " order that this crossing thread may not interfere with the " weaving action, it must be one of the threads for the under " face, this crossing being effected either between the harness and " the heddles, or between the heddles and the reed."

[Printed, 6*d*. No Drawings.]

A.D. 1864, October 28.—N° 2668. (* *)

CHARLTON, John, CHARLTON, Henry, and CHRISTIAN, John Osborne.—" Improvements in sizing, dressing, filling, " and stiffening yarns or fabrics composed of cotton, linen, silk, " wool, or other fabrics,—materials or paper whereby such mate- " rials are also rendered non-inflammable." These are, using and applying "hydrochlorate of baryta or chloride of barium" for the above purposes. The baryta salt is " dissolved and made " into a solution of any required strength, and may either be " applied to the materials alone," or " mixed with gum, starch, " flout, farina, or other sizing materials, and so be applied to the " fibrous materials;" the use of the "hydrochlorate," it is said " improves the appearance of the materials, and may also be " applied to render them non-inflammable, and also acts as an " antiseptic" " for the prevention of mildew and other fermenta- " tive decompositions."

[Printed, 4*d*. No Drawings.]

A.D. 1864, November 3.—N° 2720.

HUGHES, Edward Thomas.—(*A communication from Emilien Kuister and Marie Margaron.*)—" Improvements in the manufac- " ture of hats, caps, bonnets, or other coverings for the head." The invention " consists in various improvements in the manu- " facture of tissue crape and tulle crape composed of silk, cotton, " wool, goats' hair, and other textile materials, singly or com- " bined, and plain or figured, which crapes are to be formed of " all shades and colors, and can be applied to head dresses and " other articles of wearing apparel and other similar purposes.

" Firstly, the cotton crape is made in taffetas of various " strengths, thicknesses, or foundations, and figured, or in the " English style, but formed with cotton warp, and weft twisted " to a much greater torsion than the silk employed for ordinary " crape, the said twists or turns being about ten thousand to the " metre."

" Secondly, the silk crape is formed with one or several founda- " tion warps, and differs from the ordinary crape, for instead of " being produced in taffetas, it is obtained upon a tissue founda- " tion similar to satin, serge, and other woven fabrics, with or " without a wrong side. This kind of crape is made of prepared

" silk formed into threads of one, two, three, or more ends, having from 2,500 to 3,500 twists to the metre, and with different " degrees of torsion; it may be varied as desired by mixtures of " threads of cotton, wool, goats' hair, flax, and other textile " materials, and figured or ornamented according to fancy.

" Thirdly, the English crape is formed in any of the English " styles obtained by means of the different kinds of looms, with " a full foundation of one or of several warps, and faced with " milled silk twisted to about 3,600 twists to the metre.

" Fourthly, the tulle crape is made in any of the different looms " for weaving tulle, and in all the sizes of web or mesh employed " in the manufacture of tulle and lace in general." "These four " fabrics are formed with one or several warps, and the English " crape and tulle crape are craped by craping machines, and by all " the means employed at present for tissue crapes in general."

" Fifthly, with the above-named four kinds of crape, and by " means of a suitable application, a fifth kind of crape, called " sparkling crape, is made. This is effected by sprinkling on the " fabrics when being dressed or finished a sparkling powder of " various materials and colours, which adheres to the stuff in " drying."

[Printed, 4*d*. No Drawings.]

A.D. 1864, November 5.—N° 2743.

ELLIS, DEMAS, and HILLAS, MATTHEW.—The patentees say, —"This invention is applicable particularly to fabrics consisting " of a ground produced by the ordinary action of the jacquard " interweaving the warp with a weft thrown from selvage to " selvage, and of a figure produced on such ground by additional " or ornamenting shuttles or weft threads, interwoven with " certain only of the warps. For this purpose the warps with " which the ornamenting weft threads weave are, by the action " of the jacquard, lifted higher than the rest of the warps, so as to " leave an open space or shed suitable for the passage of the additional or ornamenting shuttles. The same action which " separates the warp for the passage of the shuttle from selvage " to selvage of the fabric, also separates them for the brocading " or additional shuttles, and as before mentioned, the warps " which are raised to be wefted by the brocading or additional " shuttles are lifted to a greater height than is necessary for the

" passage of the shuttle from selvage to selvage. In arranging " the jacquard apparatus for weaving figured fabrics in the " manner above stated, in place of having all the wires or uprights used for lifting the warps of the same length, we employ " wires or uprights of two different lengths. We tie the harness " or mounting in the ordinary way to the long wires or uprights, " and to each of the short wires or uprights we tie an additional " cord, and connect these to the cords of the longer wires or " uprights, so that when lifting the warps by the jacquard apparatus, those connected to the shorter wires or uprights (when " these are raised) will stand above those lifted by the longer " wires or uprights, and so as to leave an open space or shed " suitable for the passage of the additional ornamenting shuttles " with their weft threads. Any desired number of such ornamenting shuttles or weft threads may be employed, each " producing a like ornamental device."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1864, November 8.—N° 2773. (* *)

JOHNSON, John Henry.—(*A communication from Léon Jarosson.*)—" Improvements in the treatment of yarns or threads " and textile fabrics composed of flax, hemp, or cotton, and in " the apparatus employed therein."

One portion of this invention relates more especially to the treatment of flax yarns, " with a view to the removal therefrom " of the gummy foreign matter," and " preparring them for the " subsequent process of weaving." This is effected by suspending the yarns in a vessel which is afterwards tightly closed, and steam admitted to the interior, the action of this steam upon the yarn effecting the desired object, " when the thread or yarn will " be found to be round, brilliant, and firm."

If it be desired to bleach the yarn or fabric, such yarn or fabric is first impregnated with an alkaline solution, and then acted upon by steam in a closed vessel, the yarn or fabric being then rinsed and subjected to the action of chloride and acids, as in the usual mode of treatment. The closed vessel in which the steam is furnished with a false bottom, underneath which is a perforated pipe through which the steam is introduced.

[Printed, 8*d*. Drawing.]

A.D. 1864, November 11.—Nº 2804.

CLARK, WILLIAM.—(*A communication from Théodore Maheu Emile Lecorney and Clifford de Fleury.*)—(*Provisional protection only.*)—" The present invention relates to an improved loom, which " may be used for weaving fabrics of any width. The improve" ments consist in causing the shuttle guide to oscillate and " incline alternately to the right and left of the loom, and " causing the shuttle to slide in an inclined plane to each side of " the loom. For this purpose the race planks, heddle bars, work " beam, or roller, and all the parts acting on the threads work in " a movable frame, oscillating on an axis mounted in two supports " placed at the front and back of the loom. These supports form " part of the fixed frame of the loom, which carries the necessary " parts for transmitting motion to the movable frame and working " parts."

[Printed, 10*d*. Drawings.]

A.D. 1864, November 12.—Nº 2829.

FONTAINE MOREAU, PETER ARMAND, LE COMTE DE.—(*A communication from Xavier Fluhr.*)—This invention " relates " to certain improvements in the construction of looms for weav" ing, by which improvements the workman is enabled to reach " with facility the whole of the machinery, and to perform all " the required operations without moving from the front of the " loom."

" The warp beam instead of being placed lower than the thread " carrier is set above the level of the harness and breast beam; " the warp is made to descend, and passes underneath a roller " or bar, and is then directed horizontally towards the breast " beam, which is brought very near the harness for the purpose " of rendering the loom as narrow as possible. The warp drivers " are placed outside the frame, which arrangement allows the " regulator and the cloth roller to penetrate inside the loom." " The cross-piece generally placed above the harness to suspend " it is by these improvements no longer required, and the upper " wood rods are replaced by flattened iron tubes." " The roller " or bar by which the thread holder is replaced moves horizon" tally and parallel to its axis, and as, by means of an upper and " permanent cross piece on which the threads are supported, the

" warp descends nearly vertically, and forms equal angles with the " bar for all the successive diameters of the warp beam, the " tension of the warp can be produced by two permanent springs " or weights acting at the two extremities of the bar." "The " main shaft of the loom which puts the batten in motion receives " its movement from a small lateral shaft on which the motive " and fly wheels are set. This small shaft is excentrically " placed relatively to the main one, but they are connected by " two crank arms and a short intermediate connecting rod; by " such disposition the main shaft possesses a rotative movement, " which is much slackened when the batten reaches half of its " backward course." "The warp is regularly supplied to its " beam by click and spring work regulated for each amount of " the shoot of the weft from the beginning to the end of the warp " beam."

[Printed, 10*d*. Drawing.]

A.D. 1864, November 15.—N° 2848.

LACHÈZ, Prosper.—The patentee says,—" My improvements " relate to the combination and adaptation of parts of looms for " weaving Brussels carpets and other pile fabrics, and consist :—

" Firstly, in effecting the change from two shoots to each wire " to three shoots as may be required, by means of a double tappet " or cam, one side of which is grooved so as to give motion for " two shoots to each wire, and the other side thereof is grooved, " so as to give the required motion for three shoots to each wire. " The truck or roller upon which the said tappet acts is attached " to a lever which communicates the motion to the picker, and " the said roller is arranged so that it may be easily and rapidly " changed from one side of the said lever to the other side thereof. " In the one case it will receive motion adapted for two shoots, " and in the other case it will receive motion from the opposite " side of the said tappet, and will communicate the required " motion for three shoots to each wire.

" Secondly, my invention consists in an improved arrangement " of the jacquard wire hooks of such looms, by which the said " hooks are prevented from turning round or getting out of order " during work. I cause the said jacquard wires to be bent up- " wards from their lower ends, and pass the said bent part of " them through a plate of sheet iron slotted to receive them;

" they can move freely up and down through the said plate, but
" the slots prevent their turning or having any lateral motion.

"Thirdly, my invention consists in an improved arrangement
" for regulating the feed of the ground warp, and tightening the
" said warp during the work, and holding it whilst the wires are
" being struck up in the loom." "I cause the lay in its back-
" ward motion to act through suitable levers upon a spring slide
" so that at each beat up of the lay the said slide shall be caused
" to move backwards abruptly and shall then resume its first
" position through the action of its spring. In its motion the
" said slide acts upon a pawl taking into the teeth of a ratchet
" wheel affixed to an upright shaft, and causes the said ratchet
" wheel and shaft to revolve partially; and upon the lower end
" of the said shaft there is an endless screw taking into the teeth
" of a wheel affixed to the end of the ground warp beam and
" giving motion thereto." "And I give the required tightness
" to the said warp by causing the same in its passage from the
" warp beam to pass round two rollers placed one on the axis
" and the other at the end of the upper arm of a double vertical
" lever, the lower arm of which extends downwards, and is acted
" upon by one arm of a bell lever capable of motion round a fixed
" stud, and the other arm of which is weighted." "And in order
" to insure the said warp being held and released from pressure
" whilst the wires are struck up in the loom, I form upon the end
" of the weighted arm of the said bell lever a toothed quadrant,
" the teeth of which are taken into by a pawl or tooth at the end
" of one arm of a double lever capable of motion round its axis
" and the other arm of which is provided with a truck or roller,
" which is acted upon by a revolving cam or tappet."

"Fourthly, my invention consists in an improved mode of
" tightening and regulating and holding the dead warp as required,
" and I effect it in the same manner above described in connection
" with the ground warp," "except that the cam or tappet used
" in connection with the dead warp instead of being formed so as
" to arrest and release the weighted lever eight times during each
" revolution of the said cam or tappet, is formed to arrest and
" release the weighted lever four times during each revolution.

"Fifthly, my invention consists in an improved form of the
" wire and cutter for cutting the pile, and in an improved mode
" of operating the cutter and effecting the cutting of the pile.
" I form the wires of a rectangular or flat section, hollow at their

" warp descends nearly vertically, and forms equal angles with the " bar for all the successive diameters of the warp beam, the " tension of the warp can be produced by two permanent springs " or weights acting at the two extremities of the bar." "The " main shaft of the loom which puts the batten in motion receives " its movement from a small lateral shaft on which the motive " and fly wheels are set. This small shaft is excentrically " placed relatively to the main one, but they are connected by " two crank arms and a short intermediate connecting rod; by " such disposition the main shaft possesses a rotative movement, " which is much slackened when the batten reaches half of its " backward course." "The warp is regularly supplied to its " beam by click and spring work regulated for each amount of " the shoot of the weft from the beginning to the end of the warp " beam."

[Printed, 10*d*. Drawing.]

A.D. 1864, November 15.—Nº 2848.

LACHÈZ, PROSPER.—The patentee says,—" My improvements " relate to the combination and adaptation of parts of looms for " weaving Brussels carpets and other pile fabrics, and consist :—

" Firstly, in effecting the change from two shoots to each wire " to three shoots as may be required, by means of a double tappet " or cam, one side of which is grooved so as to give motion for " two shoots to each wire, and the other side thereof is grooved, " so as to give the required motion for three shoots to each wire. " The truck or roller upon which the said tappet acts is attached " to a lever which communicates the motion to the picker, and " the said roller is arranged so that it may be easily and rapidly " changed from one side of the said lever to the other side thereof. " In the one case it will receive motion adapted for two shoots, " and in the other case it will receive motion from the opposite " side of the said tappet, and will communicate the required " motion for three shoots to each wire.

" Secondly, my invention consists in an improved arrangement " of the jacquard wire hooks of such looms, by which the said " hooks are prevented from turning round or getting out of order " during work. I cause the said jacquard wires to be bent upwards from their lower ends, and pass the said bent part of " them through a plate of sheet iron slotted to receive them;

they can move freely up and down through the said plate, but the slots prevent their turning or having any lateral motion.

"Thirdly, my invention consists in an improved arrangement for regulating the feed of the ground warp, and tightening the said warp during the work, and holding it whilst the wires are being struck up in the loom." "I cause the lay in its backward motion to act through suitable levers upon a spring slide so that at each beat up of the lay the said slide shall be caused to move backwards abruptly and shall then resume its first position through the action of its spring. In its motion the said slide acts upon a pawl taking into the teeth of a ratchet wheel affixed to an upright shaft, and causes the said ratchet wheel and shaft to revolve partially; and upon the lower end of the said shaft there is an endless screw taking into the teeth of a wheel affixed to the end of the ground warp beam and giving motion thereto." "And I give the required tightness to the said warp by causing the same in its passage from the warp beam to pass round two rollers placed one on the axis and the other at the end of the upper arm of a double vertical lever, the lower arm of which extends downwards, and is acted upon by one arm of a bell lever capable of motion round a fixed stud, and the other arm of which is weighted." "And in order to insure the said warp being held and released from pressure whilst the wires are struck up in the loom, I form upon the end of the weighted arm of the said bell lever a toothed quadrant, the teeth of which are taken into by a pawl or tooth at the end of one arm of a double lever capable of motion round its axis and the other arm of which is provided with a truck or roller, which is acted upon by a revolving cam or tappet."

"Fourthly, my invention consists in an improved mode of tightening and regulating and holding the dead warp as required, and I effect it in the same manner above described in connection with the ground warp," "except that the cam or tappet used in connection with the dead warp instead of being formed so as to arrest and release the weighted lever eight times during each revolution of the said cam or tappet, is formed to arrest and release the weighted lever four times during each revolution.

"Fifthly, my invention consists in an improved form of the wire and cutter for cutting the pile, and in an improved mode of operating the cutter and effecting the cutting of the pile. I form the wires of a rectangular or flat section, hollow at their

" upper surface; and instead of attaching the cutters to the end " of each wire as is usual, I affix the cutter to a holder on one end " of a rectangular bar, which bar passes so as to be capable of " in-and-out motion therein through a slide, the said slide working in fixed slide bars placed across the loom and over the carpet " or other pile fabric, so that the said cutter is in a line with the " pile wire when the pile is to be cut."

" Sixthly, my invention consists in an improved arrangement " of parts for effecting the insertion and withdrawal of the pile " wires. I attach the end of the rod which holds the instrument " for drawing and re-inserting the wires to one end of a shaft, " supported in a hollow shaft open at the top, so as to allow an " up-and-down independent motion therein to the said inner " shaft, but they are so formed that one cannot rotate without " the other. The hollow shaft receives from a suitable cam or " tappet a partially rotary reciprocating motion, and the inner " shaft receives from a suitable cam or tappet at one end a reciprocating up-and-down motion, so that one end of the said " shaft rests and oscillates upon one end of the hollow shaft, " whilst the other end rises and falls as actuated by its cam or " tappet. The rotary motion of the hollow shaft draws out the " wire, then the cam acting upon the inner shaft causes one end " of it to rise, and its other end to move the wire holder diagonally to the position where it is to be reinserted, when the " reciprocating rotary motion of the hollow shaft causes the wire " to be reinserted."

[Printed, 2*s*. 6*d*. Drawings.]

A.D. 1864, November 15.—N° 2850.

BULLOUGH, JAMES.—The patentee says,—"This invention " relates to plain and fancy looms for weaving woollen or other " fabrics, and consists in further improvements upon the invention " for which Letters Patent were granted to me, entitled 'improve" 'ments in looms for weaving,' dated the eleventh day of " December, one thousand eight hundred and sixty-three, No. " 3120, and the invention has for its object not only the stopping " of the loom when there is a pick of weft broken or absent, as " in the invention before alluded to, but also the prevention of " the loom stopping when the weft is not broken or absent, as " *hitherto it* would be liable to do in cases where the loom picks " *two or more* times consecutively from one side."

"To accomplish this object I employ a weft feeler and a two-
" armed lever at or near each side of the fabric, and cause the
" weft feelers to be acted upon at every pick by tappets on the
" tappet or crank shaft of the loom or their equivalent, and make
" use of a sliding bar with an inclined swell or projection on each
" end, and cause the loom in the act of picking to force one of
" these projections under one arm of the two-armed lever on the
" picking side, and at the same time to force the swell, which is
" on the opposite side to that from which the pick is being given,
" out of the way of the two-armed lever on that side. The effect
" of this is, that only the two-armed lever can act or be put in
" position to stop the loom which is on the side remote from
" that from which the last pick was given; the two-armed lever,
" which is on the same side of the loom as that from which the
" pick has just been given, being prevented from being brought
" in position to stop the loom by the swell on that end of the
" sliding bar."

[Printed, 1*s*. Drawing.]

A.D. 1864, November 16.—N° 2866.

HUGHES, James.—(*Provisional protection only.*)—" This in-
" vention has for its object improvements in jacquard cylinders.
" In jacquard cylinders there is on each face of the cylinder and
" at each end thereof a peg called a card peg, which, as the
" cylinder revolves, enters corresponding holes in the cards, and
" the cards as they come up in succession are thus kept accurately
" in place on the faces of the cylinder." The inventor employs
" pegs, by preference of metal, and so arranged that they can
" recede into the cylinder when pressed upon, and the pegs have
" springs which keep them projecting out from the faces of the
" cylinder, except when the pegs are pressed on sufficiently to
" overcome the springs. When the cards are in their proper
" places, and if they are correctly made as respects the size of the
" peg holes and the gauge, the pegs work as if they were the
" ordinary rigid pegs, but if the cards get off the pegs, or if
" the peg holes are too small, or the gauge incorrect, then the
" pegs will recede more or less as may be required, in preference
" to injuring the cards."

[Printed, 4*d*. No Drawings.]

A.D. 1864, November 19.—N° 2897.

GAUKROGER, John, and GAUKROGER, Albert.—(*Provisional protection only.*)—The inventors say,—"This invention " relates to the letting off or weighting motion in looms for " weaving, and the improvements consist in constructing, " arranging, and applying self-acting mechanism or apparatus " for reducing the weight or pressure upon the warp beam " gradually, and in proportion as the warp is taken off or unwound " therefrom during the progress of the weaving.

"For this purpose we employ spring pressure to the weighting " levers, the pressure being adjustable by a screw pin, and we " apply one or more cams or tappets either to one of the flanges " or the ruffles, or other convenient part of the beam, in such " manner that as the beam rotates the said cam or cams or " tappets will operate a lever and rod connected to a catch which " takes into and gives intermittent motion to a ratchet wheel, " the boss of which forms a nut or is screwed and mounted on " the screw pin which is fixed to the spring of the weighting " levers, the turning of which nut on the screw relaxes the pres- " sure on the spring. Or these cams or tappets may operate a " rack rod, to which a lever or combination of levers may be " attached and connected by a rod to the said spring in such " manner that the action thereof will gradually relax or take off " the pressure therefrom as the beam rotates."

[Printed, 4*d*. No Drawings.]

A.D. 1864, November 22.—N° 2908.

ECKERSLEY, Henry.—(*Provisional protection only.*)—"Im- " provements in the method of weaving piled fabrics termed " 'satteens.'" "In manufacturing the ordinary 'satteen' five " shafts or healds are employed actuated by the tappets of the " loom which cause the weft to 'float' or 'surface pick' four " times with each course.

"In the improved arrangement seven shafts or healds are " employed, and the tappets are arranged that six or more floats " are produced with each course, thereby effecting a better " *covering* or 'face' on the cloth."

[*Printed, 4d.* No Drawings.]

A.D. 1864, November 22.—Nº 2910.

KÖTTGEN, Gustav.—"This invention consists principally in "weaving pockets for garments and bags for cash, samples, or "other similar purposes in one piece in the loom without any "seam whatever."

The patentee employs "a double set of warp threads, wound "upon two warp beams or rollers, and in weaving pockets or "bags the harness through which the warp threads pass is to be "so operated upon by the ordinary treadles as to weave two "distinct cloths, except at such parts where the seam of the "pockets or bags would be, at which parts the two sets of warp "threads are so interwoven or crossed with the weft as to form a "single cloth."

[Printed, 8*d*. Drawing.]

A.D. 1864, November 26.—Nº 2955.

HARTLEY, Charles, and HALL, Thomas.—"Improvements "in looms for weaving." The patentees say:—"Our first im"provements consist in the particular shape of the grooved cam "or tappet plate, for raising or depressing the healds of swivel "and other looms, and keeping them open so long as the open "shed is required; or we employ a guide or strap of the same "shape as the grooved cam or tappet plate, connected with levers "to move the treadles. Friction rollers are employed to work in "the internal slots or grooves. For the same purpose we employ "a crank wheel or pulley with a stud keyed on the loom crank "shaft end. By means of these improvements more dwell and "rest can be given than heretofore, and any number of healds "may be operated upon.

"Our second improvement consists in the application of a "vibrating crank to lift and depress the streamer rods connected "to the top and bottom jacks. A pattern chain moves the selected "catches on to the vibrating crank for raising and depressing the "healds attached to the jacks.

"The next improvement is in the catches jointed to the "streamer rods. One of these catches is acted upon by a "suspended pusher worked by a pattern chain or lags with "pegs.

"Another of our improvements consists in dispensing with the "lever and pusher, and applying the pattern chain or the lags "and pegs at the upper end of the neck. We next improve the "strainer rods by moving the studs for the catches more forward "and placing slides upon them for guides and bolts. We also "apply cross bars to keep the rods in their places."

[Printed, 3d. Drawing.]

A.D. 1864, November 30.—Nº 2981.

HATTERSLEY, Richard Longden, and HILL, James.—(*Provisional protection only.*)—"Improvements in looms for "weaving." The inventors say:—"This invention relates, "firstly, to means of operating rotary shuttle boxes, and one part "has reference to further improvements upon means or apparatus "for which Letters Patent were granted to the aforesaid Richard "Longden Hattersley, dated May 24th, A.D. 1858, Nº 1155."

"Now the object of the present improvements is to enable any "change to be made in the shuttle boxes, or to 'skip' from any "one compartment to any other compartment in the series, as "may be required, and for this purpose instead of having only "one hook on each of the portable hooks or catches we have as "many hooks placed thereon, at suitable distances apart, as the "greatest number of compartments to be turned in any single "action required. Also we have the ends of the rods, pins, or "needles which come in contact with the cards of the jacquard "or indicating apparatus constructed of different thicknesses or "steps, the thickest part forming a shoulder to the next smaller "part, and so on; and the cards are prepared with different sizes "of holes to correspond, so that a small hole in the card will only "admit the smallest size or end of one of the rods, pins, or needles "to enter to its shoulder, and the next larger size of hole will "admit of the next thicker portion of the rod, pin, or needle to "enter to its shoulder, and so on, the rods, pins, or needles being "capable of passing through the cards according to the size of "hole in the card presented to it, and thereby give more or less "extent of motion in the turning of the shuttle boxes through "the operation of each taper rod, pin, or needle. We also "accomplish the same result by the use of levers attached or "connected to the rods, pins, or needles above described instead "of wedges."

"Another part of the improvements has reference to operating "rotary shuttle boxes from or by the crank shaft or other shaft of

A.D. 1864, November 22.—N° 2910.

KÖTTGEN, Gustav.—"This invention consists principally in " weaving pockets for garments and bags for cash, samples, or " other similar purposes in one piece in the loom without any " seam whatever."

The patentee employs "a double set of warp threads, wound " upon two warp beams or rollers, and in weaving pockets or " bags the harness through which the warp threads pass is to be " so operated upon by the ordinary treadles as to weave two " distinct cloths, except at such parts where the seam of the " pockets or bags would be, at which parts the two sets of warp " threads are so interwoven or crossed with the weft as to form a " single cloth."

[Printed, 8*d*. Drawing.]

A.D. 1864, November 26.—N° 2955.

HARTLEY, Charles, and HALL, Thomas.—"Improvements " in looms for weaving." The patentees say:—"Our first improvements consist in the particular shape of the grooved cam " or tappet plate, for raising or depressing the healds of swivel " and other looms, and keeping them open so long as the open " shed is required; or we employ a guide or strap of the same " shape as the grooved cam or tappet plate, connected with levers " to move the treadles. Friction rollers are employed to work in " the internal slots or grooves. For the same purpose we employ " a crank wheel or pulley with a stud keyed on the loom crank " shaft end. By means of these improvements more dwell and " rest can be given than heretofore, and any number of healds " may be operated upon.

"Our second improvement consists in the application of a " vibrating crank to lift and depress the streamer rods connected " to the top and bottom jacks. A pattern chain moves the selected " catches on to the vibrating crank for raising and depressing the " healds attached to the jacks.

"The next improvement is in the catches jointed to the " streamer rods. One of these catches is acted upon by a " suspended pusher worked by a pattern chain or lags with " pegs.

"Another of our improvements consists in dispensing with the " lever and pusher, and applying the pattern chain or the lags

" and pegs to the upper end of the catch. We next improve the " streamer rods by moving the studs for the catches more forward " and placing ribs upon them for guides and bolts. We also " apply cross bars to keep the rods in their places."

[Printed, 10*d*. Drawing.]

A.D. 1864, November 30.—N° 2991.

HATTERSLEY, Richard Longden, and HILL, James.—(*Provisional protection only.*) — " Improvements in looms for " weaving." The inventors say: — " This invention relates, " firstly, to means of operating rotary shuttle boxes, and one part " has reference to further improvements upon means or apparatus " for which Letters Patent were granted to the aforesaid Richard " Longden Hattersley, dated May 24th, A.D. 1858, N° 1155."

" Now the object of the present improvements is to enable any " change to be made in the shuttle boxes, or to 'skip' from any " one compartment to any other compartment in the series, as " may be required, and for this purpose instead of having only " one hook on each of the portable hooks or catches we have as " many hooks placed thereon, at suitable distances apart, as the " greatest number of compartments to be turned in any single " action required. Also we have the ends of the rods, pins, or " needles which come in contact with the cards of the jacquard " or indicating apparatus constructed of different thicknesses or " steps, the thickest part forming a shoulder to the next smaller " part, and so on; and the cards are prepared with different sizes " of holes to correspond, so that a small hole in the card will only " admit the smallest size or end of one of the rods, pins, or needles " to enter to its shoulder, and the next larger size of hole will " admit of the next thicker portion of the rod, pin, or needle to " enter to its shoulder, and so on, the rods, pins, or needles being " capable of passing through the cards according to the size of " hole in the card presented to it, and thereby give more or less " extent of motion in the turning of the shuttle boxes through " the operation of each taper rod, pin, or needle. We also " accomplish the same result by the use of levers attached or " connected to the rods, pins, or needles above described instead " of wedges."

" Another part of the improvements has reference to operating " rotary shuttle boxes from or by the crank shaft or other shaft of

" the loom, also to a means of locking or holding the shuttle " boxes in correct position, and for releasing them at the proper " time for change of compartments. This consists of pushers " operating on each side of the stud plate, which is fixed on the " spindle of the shuttle box, and which pushers and stud plate " are so formed and arranged and provided with guards that the " pushers can only be pushed or moved a certain distance sufficient to move the shuttle boxes to the extent of one compartment, or a change to the adjoining compartment, in either " direction. Also a spring catch is actuated simultaneously with " either of the pushers to drop into a notch of the stud plate and " hold the shuttle boxes in position, and which is lifted or removed from the notch so as to release the shuttle boxes when a " change is required to be made. Motion is communicated to the " pushers by levers actuated by cams or tappets applied on the " crank or other shaft of the loom."

"Another part of the invention has reference to a method of " working the healds or heddles, and consists in the application " of single or double spring catches inserted or attached to the " upright treading rods or bars which are connected to the top " and bottom levers for raising and depressing the healds or " heddles, such catches being brought into position to be operated " by the ordinary treading levers by means of jacquard or other " indicating apparatus."

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 2.—N° 3008.

POLLOCK, William.—"This invention essentially relates to " certain improvements in the arrangement of machinery or apparatus attached to the lay of power looms, and has for its object " the production of ornamental sprigs upon the groundwork of " the cloth."

" According to one modification of this invention there is " fixed to the front of the lay a bar or strip of wood, metal, or " other suitable material, the ends of which are fitted so as to " move in a pair of vertical guides; to each extremity of this bar " there are also attached light metallic bars connected by cords " to the lifting frame of the jacquard mechanism. Upon a shaft " driven off the first motion shaft of the loom there are fixed a " pair of cams or wipers for actuating a pair of 'pick sticks,' as

" for each color a plate with the devices in that color cut through " it is applied in contact with them, whilst the color is applied by " brushes, pads, or rollers, so as to color the parts of the warps " exposed by the openings in the plate."

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 6.—N° 3036. (* *)

DIXON, George.—" Improvements in the manufacture of ruche " for chenille and upholsterers' trimmings."

The object of this invention is effected by first " weaving a web " by hand or power loom, such web having double separate warps " of silk, mohair, worsed, cotton, or other similar equivalent " flexible materials. The two warps are woven together at regular " intervals by a woof composed of a thread or threads of cotton, " silk, mohair, or other suitable material, which thread or threads " are so woven up into the fabric or web as to act as binders as " herein-after described, and when the web is cut into strips by " cutting along between the aforesaid intervals a ruche is thus " formed, which, when the same is twisted, forms a round cord " or chenille, and when afterwards woven in a hand or power " loom with a warp of worsted, cotton, silk, or any other flexible " material, forms a perfectly round, distinct, cable bullion fringe, " which can be produced in various depths, substance, and style. " These double separate warps may be of different colours if " desired, which will add to the effect when the ruche is twisted " into chenille, and the web may be made of the required depth."

The ruche is "twisted in a twisting wheel," to convert it into chenile, &c.

[Printed, 6*d*. Drawing.]

A.D. 1864, December 12.—N° 3076. (* *)

BROOMAN, Richard Archibald.—(*A communication from François Vouillon.*) — (*Provisional protection only.*) — " A new " method of ornamenting fabrics."

The invention consists in ornamenting fabrics by introducing therein threads carrying beads and other similar articles, the fabrics thus becoming " studded with brilliant points in design " or otherwise."

The beads or other articles are strung upon a thread, a second thread being twisted round this to secure them in their places, and these threads, with the ornaments, are placed on bobbins, and may be passed into the fabric by a shuttle. "If desired, " additional threads may be introduced to conceal the ornaments " on the reverse side of the fabric."

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 14.—N° 3105.

LEEMING, JAMES; LEEMING, JOHN; and LISTER, JOHN. —"Improvements in the jacquard machine." The patentees say:—"By means of one part of our invention (when used in " combination with certain well-known apparatus termed 'swivels,' " which is an arrangement of shuttles working above the ordinary " shuttle for producing figures upon the piece in addition to what " can be done by what we may term the ground shuttle) we are " enabled to form either one or two distinct and separate sheds " at any time, and pass the respective shuttles through simultaneously; secondly, to command the use of any needle at any " required time for either the upper or lower shed; thirdly, by a " novel combination of parts to weave a design where the swivel " figures are in continuous or intermittent parallel lines to each " other, and at right angles with the edge of the piece, or where " they are desired to form a continuous or intermittent diagonal " line; and, fourthly, to form the vertical wires of one uniform " length, and having two hooked projections.

"By another part of our invention we obtain similar results " by distinct means from those employed in the first part of our " invention."

"The jacquard machine which constitutes the first part of our " invention we will now proceed more fully to describe. We " apply and make use of two sets of 'knives or griffs,' having a " separate motion imparted to each of them by two levers having " different fulcrums, yet connected to each other by a link or " swivel joint, and operated upon by any suitable means from " the working parts of the loom, the effect of which would be to " cause one set of knives to traverse higher than the other set of " knives, and form the upper shed for the swivel shuttles. The " vertical wires we form with double heads or hooks, and on the " cards which press against the horizontal wire, encircling the " vertical wire or needle, we place projections, where required, " formed of card or other material of suitable thicknesses, so that

" when the cylinder over which the cards pass shall press a card " against the horizontal wires, the effect will be, where a projection " exists, to cause the vertical wire thereby operated to be pressed " so far back as to enable the set of knives having the higher " traverse to lift such needle sufficiently high for the upper shed, " and the vertical wire operated by the blank in the card will be " pressed back into the space between the two sets of knives, and " remain in its normal position, and again when the horizontal " wire shall have a hole presented, no action will be given to its " vertical wire until the knives ascend, when it will be lifted to " form the first shed. The swivel shuttles are arranged in a " suitable position on a fixing attached to the hand tree of the " loom, capable of being slided thereon, and motion may be given " to the said swivel shuttles by a rack and pinions, or by other " means. To the fixing which supports the swivel shuttles we " connect gearing or an equivalent which we cause to be operated " when required by wires from the jacquard, so that at each pick " of the loom a certain amount of traverse may be given the " whole of the swivel shuttles in either direction, and enable us " to produce the continuous or intermittent diagonal figure. " When the fixing of the swivel shuttles is not operated, the " continuous or intermittent figure in right lines along the piece " may then be woven.

" We will now describe the jacquard machine which constitutes " the second part of our invention. The usual knives or griff of " existing jacquard machines are connected, and have but one " uniform motion. We, in our invention, divide or separate into " two sets the existing knives or griff, and give to each set an " alternate higher traverse. The vertical wires are used of one " uniform length with single heads or hooks. The knives are " operated by a combination of levers similar to those already " described in the first part of our invention, with an additional " motion operated by wires from the machine for connecting and " disconnecting the levers which give the alternate higher traverse " required for the forming the upper shed for the passage of the " swivel shuttles."

[Printed, 3*s*. Drawings.]

A.D. 1864, December 16.—N° 3126.

NORTON, JAMES LEE, and AINSWORTH, WILLIAM.— " This invention has for its object improvements in looms for

" weaving, and relates, first, to an arrangement for working the " leaves of the healds."

" For this purpose the top cords of each leaf of the healds are " connected to a wire, and each wire is passed through holes in a " plate which projects over the top of the healds in the middle of " the loom, each hole being exactly or nearly so over the middle " of each leaf of the healds to which it is attached. These wires " are connected to hooks, which rest upon the top of the perforated plate in such a manner that when springs are attached " below the healds for pulling them down, the hooks are pulled " from their perpendicular position by having their lower or " bottom ends bevilled or rounded off in one direction. These " hooks are kept in their proper places by passing through a " grid or guides or other convenient means, so that projections " upon them may come properly into contact with a pattern " surface, by which means these hooks can be selected so as to " bring or leave such of them as correspond with the leaves of " the healds which it is required to lift over a bar or knife on " which the hooks catch, and which is arranged as hereafter " described.

The pattern surface may either be cards with holes in, or lags " with projections on, as commonly used, and which are brought " at the proper time, by a suitable vibratory motion, into contact " with projections on the hooks, which causes the hooks connected to those leaves of the healds which are to be lifted to be " pressed forward over a knife or bar which has a constant up-and-down motion given to it, and which takes hold of those " hooks which are selected by the pattern surface, and raises the " leaves of the healds in the order required."

" When a double shed is required another series of hooks and " another knife or bar are employed below the healds, so that " those healds which are not pulled up by the top knife are " pulled down by the bottom knife or bar, which moves nearly " simultaneously with the one above it."

"This invention also relates to an arrangement for admitting " of a change in the order of succession, in which the leaves at " the healds are moved, which is accomplished by attaching " wires or cords to the hooks for lifting the healds and carrying " them to a convenient part about the loom, and by diverging " them allow sufficient room for two or more patterns to be " arranged on the same cards or lags if required."

"Another part of this invention also relates to mechanism for "actuating change shuttle boxes. For this purpose a star wheel "is mounted on an axis on the loom frame (this wheel, which is "not in itself new), is a polygon of as many sides as are found "to be convenient. The sides of the star wheel are concave, and "made so that they will fit to the circumference of a cylinder "(made double, as herein-after described), which is also mounted "on an axis on the frame close up to the star wheel, so that the "cylinder locks the star wheel and prevents its revolving. The "cylinder is divided midway of its length into two parts, and the "two parts are caused to revolve in opposite directions. The "star wheel is capable of being traversed along this cylinder, and "when it is moved towards either end it meets a recess or hole in "the periphery of the cylinder, which allows the star wheel to "turn, and at the same time a pin or tooth on the end flange of "the cylinder enters a notch in the star wheel and turns it. "There is a notch formed in the star wheel to receive the pins or "teeth for turning it at each of the angles of the polygon. When "the star wheel is traversed up to the end of the double cylinder "in either direction, in addition to the first pin or tooth which "acts to turn it, as already described, it meets a second shorter "pin or tooth, which by entering another of the notches in the "star wheel turns it another, that is, a second step; the recess "or hole in the periphery of the cylinder at this part being "sufficiently long to allow two of the angles of the star wheel to "pass. Thus it will be seen that the star wheel will remain "stationary as long as it is retained at about the centre of the "double cylinder; but that when it is slid to either end it is "moved at each revolution either one or two steps according to "the distance to which it is slid, and these steps will be made "forward or backward according as it is moved towards one or "the other end of the cylinders. Similarly the apparatus may "be arranged to give three steps either forwards or backwards if "desired."

[Printed, 2*s*. Drawings.]

A.D. 1864, December 20.—N° 3157.

CAMERON, Peter, and **BOWMAN**, Thomas.—(*Provisional protection only.*)—"This invention relates to certain improve- "ments in textile fabrics, and it essentially consists in forming

“ numerous ornamental veins, which it is preferred to name as
“ the ‘ princess veining,’ in the direction of the length of the
“ cloth, or as termed by weavers ‘ up the loom,’ or they may be
“ formed in the transverse direction. The nature or formation of
“ the veins on the cloth is in imitation of those patterns ordinarily
“ produced by the use of needles by hand.”

“ The machinery by which these improvements are effected
“ consist in adding to the ordinary loom an additional number of
“ treadles attached to an additional leaf of heddles, for actuating
“ those portions of the warp in which the above-named veining is
“ produced. The warp is actuated in such manner, that on either
“ side of the central threads of the vein one or more warp threads
“ are lifted or depressed, so as to be clear of the shuttle when it
“ passes across, and the central threads are intertwined with the
“ transverse threads so as to form the pattern.”

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 20.—N° 3162.

MAYNES, WILLIAM.—(*Provisional protection only.*)—“ An im-
“ proved picker band used in looms for weaving.” The inventor
says:—“ I make the picker band of iron, steel, or other suitable
“ metal, thus making it a metallic band, and attach one end of it
“ to the picker, and the other to the picking peg by means of a
“ pin or other suitable contrivance, so that each end will act as a
“ swivel, and in working the picker will have a loose motion,
“ giving and taking a little, so as to compensate for the rigidity
“ of the metal, and accommodate itself to the flexibility of leather
“ or similar material.”

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 21.—N° 3176.

HARGREAVES, JAMES.—“ This invention consists in an im-
“ proved shedding motion or indexing apparatus for working
“ any suitable number of healds for weaving fancy fabrics, but
“ more especially for weaving terry cloth of various patterns or
“ designs.” On the tappet shaft of the loom, the patentee fixes
“ a double internal tappet, in the groove of which there is a bowl
“ working on a stud attached by a bracket to a lever, having con-
“ nected to it the bottom end of a connecting rod, the top of

" which is fixed to a knife or lifter, which reciprocates up and " down by means of the double tappet, and acts upon hooks " connected by wires, jacks, and chains, or cords to the healds. " According to the pattern required the hooks are pressed " inwards by lances or fingers acted upon by pegs in a pattern " cylinder, which is made to revolve by gearing from the tappet " or crank shafts of the loom, and is capable of sliding to and " fro on its shaft by means of a lever and clutch worked by hand. " The hooks are suspended near their upper ends to the wires " connected to the jacks, and their tops are bevilled, so that when " they are not pressed inwards for enabling their hooked ends to " be caught by the knife, they shall by their own gravity be out " of reach of the knife, and at the same time be ready to be acted " upon by other pegs in the pattern cylinder, the hooks being " maintained in their backward position when the knife is chang- " ing its motion, by their bevilled tops being in contact with a " plate fixed to the framework of the loom. When the tops are " released from the plate, the hooks can be acted upon by the " pegs, and as the pattern cylinder can be moved to and fro to " enable different rows of pegs to act upon the hooks, the changes " in the pattern of the fabric can be made with great facility."

[Printed, 8*d*. Drawing.]

A.D. 1864, December 23.—N° 3186.

EDGE, James Broughton, and HIRD, Enoch.—" An im- " proved size or adhesive mixture to be used in the process of " finishing cotton heald and other doubled yarns, and in the " machinery or apparatus employed therein."

The patentees say :—" We employ an improved adhesive sub- " stance or mixture in the trough or troughs of the doubling " machines, the said troughs being placed between the bobbins " and rollers. Our improved mixture is composed of farina, " linseed, palm, or cocoa-nut oil, gum arabic, common soda, white " wax, and the whites of eggs."

" The improved machinery or apparatus which we use for finish- " ing the doubled yarns after they have left the doubling frames " consists of a metal framework, on which we place a drying " cylinder, a gassing apparatus, a creel for holding the bobbins " containing the doubled yarns, and a reel for receiving the finished " yarns.

"The yarns from the bobbins pass round the drying cylinder "and over the jets of gas, and after passing in contact with a "brush are wound on the reel, the gas pipes to which the jets "are connected being so arranged as to move sideways and "remove the jets from the yarns when the driving strap is moved "to the loose pulley, for stopping the machine, and at the same "time the gas is shut off or lowered by a lever communicating "with the stopping apparatus."

[Printed, 10*d*. Drawing.]

A.D. 1864, December 23.—N° 3189.

TACONET, Emile.—(*Provisional protection only.*)—"Improvements in looms by the addition of one or more reeds to the "ordinary reed to facilitate the division of the warp during the "weaving." The inventor says:—"It often happens that fabrics "are made with 3, 4, 5, and 6 warp threads in one reed, dent, or "tooth; this multiplicity of threads brought together, catching "the one in the other, clogs the weaver's work and produces but "an indifferent quality of fabric. To obviate these defects I "adapt to the batten or lay carrying the ordinary reed, a second, "and if needful several reeds, intended to divide the warp threads "before they pass into the batten reed."

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 23.—N° 3190.

GEDGE, William Edward.—(*A communication from Eugène Gustave Laniel and Jacques Alphonze Laniel.*)—"Improved "means and apparatus by the use of which a stripe or border "may be woven on napkins, table-cloths, and other fabrics by "the power loom." This invention relates to "the application "of a treadle movement lifting and lowering the healds or lifting "blades, so as to reproduce any arrangement of stripe or border "pattern." The mechanism consists of a series of circular tappet plates. "The plates with similar or different grooves are brought "one against the other and form a cylinder," which receives motion by gearing from the crank shaft. The tappet plates are placed at the side of the loom and actuate levers, which are attached by cords or hooked lifting wires to the outer ends of the upper and lower marches, the inner ends of which are attached to the healds. "To obtain intermittence of motion as well as the stop-

"page after the completion of each stripe or border, it suffices to "hook or unhook the cords." It is proposed to modify this arrangement "by substituting reliefs in lieu of hollows, that is to "say, by substituting in lieu of the grooved plates eccentrics, the "bossages and hollows of which freely raise and lower the treadles." The eccentrics are placed in the centre of the loom and act upon the treadles, which are connected to the under sides of the treadles; the upper sides of the treadles are connected together by cords passing over rollers, so that when one treadle is lowered another is lifted. When the stripe or border is finished, the shaft carrying the eccentrics is moved endwise, so that the eccentrics for weaving the border are thrown out of action, and a double eccentric separated in two breadths is thrown into gear with the treadles to weave the plain part of the fabric. Instead of eccentrics it is proposed to employ "a conical cylinder," "on which cylinder "might be screwed or otherwise fastened keys, the placing of "which at different points would allow the combinations to be "varied."

"It is proposed to place upon the dressing machine a marking "indicating apparatus which will print on the warp a colored "mark indicating the place for the stripes or borders in the entire "length of the piece." The marking is effected by a pad or cushion impregnated with coloring matter; the pad is brought in contact with the warp threads by a hammer actuated by pins on the back of a wheel, on the front of which is another pin, which, by means of a ratchet wheel and click actuates a hand, which indicates on a fixed dial the measurement of the warp.

[Printed, 1*s.* 10*d.* Drawings.]

A.D. 1864, December 24.—N° 3200.

FIELDING, Enoch.—(*Provisional protection only.*)—"Certain "improvements in power looms and apparatus connected there-"with." The inventor says:—"My first improvement relates to "apparatus for preventing the shuttle when it misses the box "from flying about amongst the machinery, or otherwise "committing bodily injury to the attendants. On or above the "spindle studs of the slay I fix a guard of sheet metal or other "suitable material. This guard projects upwards from the stud, "and is of such a breadth and height as to receive the shuttle "when it misses the box. My second improvement relates to a

" further shuttle guard which is supported from the framework " of the loom. This guard may be of any suitable form, and " fixed from the loom side so as to just to clear the end of the " slay when the loom is at work." " My third improvement " consists in the use or application of a hook or loop of a peculiar " construction, for the purpose of enabling the attendant to apply " cleaning material to remove the sediment or black mud which " accumulates on the picker spindle."

[Printed, 4*d.* No Drawings.]

A.D. 1864, December 28.—N° 3226.

HOLMS, William.—(*Provisional protection only.*)—" This in" vention relates to certain improvements in the system or mode " at present employed for treating warp yarns or webs used in " looms for weaving." According to this invention, " the warp " yarn is placed on a beam or beams, and at one process it is " dyed and dressed, or stiffened; or should it not require to " be dressed or stiffened, the dyeing process is effected alone. " These operations are capable of being carried out in several " ways." " Another part of this invention has reference to " the employment of a bleaching solution in lieu of the colour, " as herein-before described, and when the bleaching solution is " employed it is placed in dye vats in substitution of the colour, " thereby bleaching the threads or yarns as they are passed " through it."

[Printed, 4*d.* No Drawings.]

1865.

A.D. 1865, January 2.—No. 7.

SPENCER, John, and BROOMHEAD, Noah.—" This in" vention relates to the manufacture of carpets and hearthrugs " from remnants of winsey, linsey, orleans, alpaca, flannel, " woollen cloth, moreens, and stuff goods. These are cut into " strips of suitable width and their ends secured together by " stitching or sewing so as to obtain any desirable length," this is used as weft. "The warp used is of cotton, hemp, or jute " band, and may be dyed to any colour. The machinery employed

" in weaving such carpets and hearthrugs is the 'hand loom,' or " power looms may be used having a large shuttle and shuttle " boxes provided."

[Printed, 4*d*. No Drawings.]

A.D. 1865, January 4.—No. 19.

KEIRBY, Edward.—This "invention consists in manufacturing " elastic packings for pistons and piston rods of steam engines " or pumps in the form of a flat rope or web composed of two or " more strands or plaits of hemp or other fibrous substances " united together in a loom or other suitable machine by a " binding weft."

Another part of the "invention consists in combining with " the tallow and oil or other ingredients employed to lubricate " the packings of pistons a certain proportion of soda ash to allow " the steam to penetrate the packing, and thus prevent it being " burnt."

[Printed, 8*d*. Drawing.]

A.D. 1865, January 6.—N° 43.

CASTREE, John Alfred.—(*Provisional protection only.*)— "This invention relates to double looms in which two pieces of " fabric are woven at one and the same time on the same level. " The warps for the two fabrics pass between the dents of two " separate reeds attached to one or more reed caps and to one " lathe or batten, there being two shuttle boxes and one or two " slots on the same level. Instead of using two picking sticks " only for actuating the pickers and shuttles," the inventor employs "a picking stick at each end of the lathe, and either one " or more, as may be found desirable, in the middle, but one in " preference. The picking stick or sticks pass through a slot or " slots in the lathe or lathes, and are worked by tappets or projections on the tappet shaft or on shafts parallel with the shuttle " boxes and slots."

[Printed, 4*d*. No Drawings.]

A.D. 1865, January 6.—No. 45.

CRAW, John, and MACAULAY, James.—"This invention " relates to the weaving of ornamental fabrics in an improved " and simplified manner, so as to present a distinct and complete

" pattern on both faces, and it is more particularly suitable for " the production of 'shawl' and similar designs.

" In practising the invention, warps are provided for both faces, " and the warps for each face are actuated by separate sets of " harness and separate sets of jacquard cards, the harness for one " face being placed in front of that for the other face. Each " harness mail has a single warp thread passing through it, and " each warp thread for one face passes between two of the " harness tails for the other face, the two sets of warps being " thus alternated thread by thread as taken across the loom. " A number of differently colored wefts are used, and when any " one of them is being picked, the warps of the under face are " raised at all points at which that weft has to appear on the " under face, whilst the warps of the upper face are lifted at all " points excepting those at which that weft has to appear on the " upper face.

" Ordinarily, the warps used in weaving fabrics of this kind " are fine, and of a dull color, so as to show as little as possible " upon the pattern surfaces of the fabric, being used for binding " the wefts together, and thus 'forming cloth;' but by the present " invention the warps used are of one or more bright or other " colors, suitable for forming essential parts of the design."

[Printed, 4*d*. No Drawings.]

A.D. 1865, January 18.—N° 153.

BURCH, Joseph.—" Certain improvements in looms and apparatus for weaving velvet pile and terry-faced fabrics, and a " certain mode of producing designs on such like fabrics."

The patentee says :—" The first part of my invention relates to " certain of those parts of the power loom which insert the wires " under the face warp and withdraw them after they are woven " into the fabric, when the terry is formed." " The parts of the " wire motion to which I have adapted my improvements consist " of a slide rail, which is attached to the side of the loom, and " projects therefrom at a right angle. Upon the slide rail there " is a slide or carriage, which traverses to and fro on the slide " rail, by its outward action withdrawing the forward wire from " the face of the fabric, and on returning inserting it in the open " shed under the face warp, to be again woven into the fabric. " A dozen wires, more or less, are used, and thus withdrawn and

“ inserted in rotation. The wire heads pack side by side at the
“ side of the loom on the wire head plate, which keeps them in
“ position as the weaving progresses. Instead of fixing the
“ drawing nib or catch which takes hold of the wire head to the
“ slide carriage, and by other means when the wire is withdrawn
“ cause the wire head to shift laterally backwards across the slide
“ carriage before re-insertion, I perform both these operations by
“ means of a crank lever which is placed on the upper surface
“ of the slide carriage.” “The wire rest receives and supports
“ the end of the wire after it is withdrawn from the fabric. At
“ the extreme end of the wire rest there is a hinge joint, by which
“ a tongue weight which rests on the wire rest is jointed thereto.
“ When the end of the wire is forced backwards it slides under
“ the tongue weight, which is slightly hollowed underneath up
“ to the end joint, and as the insertion of the wire takes place, it
“ gradually slides or works itself from under the tongue weight,
“ which so steadies it during its inward course that all jerking
“ is prevented.”

“ The second part of my invention relates to an improvement
“ in the mode of cutting the terry as the wires are withdrawn, in
“ order to leave a velvet pile face to the fabric.”

“ By my improvement I fix the blade in the end of the wire,
“ with its cutting edge downwards, partly in a fine groove formed
“ in the top edge of the wire. The end of the blade above the
“ groove is turned slightly upwards, and points in the direction
“ of the wire head. The cutting takes place as the wire is with-
“ drawn from the fabric.”

“The third part of my invention relates to a mode of cutting
“ the pile to form velvet-faced fabrics by mechanical contrivances,
“ after the manner of cutting the wires out of hand-woven fabrics,
“ as practised by hand weavers.” “This part of my invention
“ consists in a mode of cutting out grooved wires by mechanical
“ means, in connection with a wire motion, as adapted to a power
“ loom. Each wire has a groove along its upper edge, as in hand
“ weaving. The heads of the wires are formed out of flat metal,
“ about the thickness of the wires, which are also generally
“ flattened, excepting when coarse low pile fabrics are being
“ made. The chief object to be obtained is the moving the wire
“ heads forward at the same speed as the weaving progresses,
“ *but which* must be done in so precise a manner that the centre
“ *of the* groove in the forward wire shall at the proper time arrive

" under the line traversed by the cutting blade, which is fixed " end downwards to the side of a small slide plough. A guide " rail is fixed across the loom over the fabric, upon which the " plough, by means of a light connecting rod jointed on to the " carriage of the wire motion is made to traverse to and fro across " the fabric. The knife which cuts from the head to the point of " the wires is lifted at the end of its outward action, and after " re-crossing the fabric, falls into the groove of the next wire, " which has then advanced to the cutting line. The precise " onward motion of the wire heads is obained by the use of two " advancing screws, one above and the other beneath the wire " heads, the edges of which work into the threads of the screws, " which have a rotating intermittent action."

"The fourth part of my invention consists in producing " figures and designs on terry-faced fabrics by a peculiar mode " of cutting those loops only which form the intermediate parts " of the design, or in other cases only those loops which form " the design, so that one part shall be terry, and the other velvet " pile. After the fabric is woven I pass it face upwards under " the pressure of a heated plate or roller, upon the face of which " the design is formed in relief. By this heated contact and " pressure on the face of the fabric by those parts in relief which " form the design on the face of the heated plate or roller, the " terry surface of the fabric is completely flattened down, while " the intermediate parts remain standing as before. The fabric " then passes across a narrow table, over which, upon a slide " rail, is a traversing slide, to the under surface of which are " affixed a number of knives that have their cutting points " hooked forwards. These knives are so set that their points are " all on the same level as the surface of the table, and at such a " distance therefrom that as the slide traverses to and fro across " the fabric they shall pass over those parts which have been " flattened down, but shall catch and cut those loops only which " form the intermediate parts of the design, and, as before " described, have been left standing.

[Printed, 1s. Drawing.]

A.D. 1865, January 21.—N° 189.

ROBINSON, Matthew.—" Improved machinery or apparatus " for shaping the elastic dents of expanding and contracting

" combs." The wire is placed on the ordinary reel, and " passes " from the reel to a bed or table, on which there is a frame " having at the top a slide carrying two bowls, and at one side " two vertical bearings and boxes. The slide is connected by a " connecting rod to a crank fixed to a second shaft, turned by " gearing from the driving shaft of the machine, and in the " vertical bearings there are spindles having at the top and bottom " arms or levers, and each spindle is connected to one end of a " spring, the other end of which is held to its corresponding " box. The top arms are acted upon alternately by the bowls on " the slide, and move them and also the bottom arms or levers " an arc of a circle one way, and the springs move them back " to their original positions. The bottom arms or levers are " employed for bending or shaping the dents, and the lengths of " the arcs they describe correspond with the required length of " the dents. The arms are moved alternately, one arm forming " the bends at one end of the dents, and the other arm the bends " at the other end, and as the formation and operation of both " arms are alike, a description of one will suffice for both. At " the outer extremity of each bottom arm there is a pin and pro- " jection, and when the arm is being turned by means of the top " arm and slide, the pin seizes the wire and bends it, and then " the wire passes behind a pin on a lever having an incline which " was depressed by the projection on the arm. This pin holds " the bend until the next bend is nearly made on that side, at " which time the projection on the aforesaid bottom arm again " depresses the incline, and releases the pin from the bend for " allowing it to be moved onwards, to enable the succeeding bend " to be held by the pin, and in order that the pin on the arm " may escape the pin on the inclined lever, the said arm is jointed " into two parts, so that it may contract and become sufficiently " short to pass by the pin on the inclined lever when it is return- " ing to its backward position to wait until the other arm has " formed the bend at the other end of the dent, and afterwards " return to make a fresh bend on the first-mentioned side; and " in order that each bottom arm may be straightened for making " the bend, one of the parts of the arm comes in contact with a " projection fixed to the frame, and the arm remains straightened " until the bend is made; and for enabling the bends to be " formed with exactness, the finished dents are prevented from " rising as they pass onwards by a spring plate above the table.

" The bends at each end of the dents are nipped by nippers " placed on a slide, which is moved to and fro by an eccentric " on the before-mentioned second shaft of the machine, so that " the nippers may arrive at the opposite bends alternately, and " be pressed by bowls on another slide worked by another " eccentric. The instant the bowls are removed from the nippers " the latter move back, so as to release the dents, and allow them " to be drawn gradually forwards, and then wound on a spindle " at a uniform surface speed by the surface motion of a roller " turned by toothed or worm gearing from the first or second " shafts of the machine."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, January 25.—N° 212. (* *)

BROOMAN, Richard Archibald.—(*A communication from Veran Sabran and Gaston Jessé.*)—" The manufacture of a new " thread for weaving and other uses."

This invention relates to a mode of producing spotted or speckled threads, " and is based on the irregular winding of one " or several threads round one or several threads of the same or of " different nature, and of different colors. Suppose, for example, " a thread is unwound from a bobbin and passes through an- " other bobbin from which a thread of a different color is being " unwound at the same time so as to surround the first thread " in an irregular manner, spots or specks are produced." " When the first thread advances, while the second thread of a " different color winds round it, the latter forms round the first " thread spirals, which are plainly separated from each other; " but if the motion of the first thread be stopped or slackened, " and the second thread continues to wind round it, the spirals " of the second thread become superposed or laid one against " another round the first thread, without leaving spaces between " the spirals, and form a spot or speck thereon." The motion of the thread or threads for forming the spots may be either uniform or varied.

[Printed, 4*d*. No Drawings.]

A.D. 1865, January 31.—N° 272.

HALL, Thomas, and BONSER, Samuel.—In the Provisional Specification the patentee states :—" This invention consists in

" improved arrangements of mechanism for giving revolving " motion of different velocities without the use of change wheels, " which arrangements are applicable to the taking-up or letting- " off motions of looms, taking-up beams of carding and sizing " machines, and all machines requiring change wheels."

In the Final Specification the patentees confine themselves " to " the intermittent revolving motions suitable for the taking-up " motion of looms."

" On the shaft or beam to be turned is fixed a toothed wheel " communicating by gearing with a toothed wheel working on " a stationary stud, and having at each side a central boss and " rim of a rim wheel. On one of the bosses, as a fulcrum, is " placed a lever, in the boss of which there are slots or seatings " opposite each other, and in each slot or seating there is a clip " formed of a piece of metal, held in its place by a spring, and " having a slot or groove which clips one side of the rim wheel. " At the other side of the rim wheel there are short stationary " arms or stationary bosses for holding similar pieces of metal " to those before-mentioned for the purpose of clipping the other " side of the rim wheel, and acting as holding clips when the " vibrating lever is making its backward movement. The afore- " said lever has vibrating motion imparted to it by a crank, " eccentric, or vibrating arm, and when it moves one way its clips " seize the rim on that side, and turn the rim wheel in proportion " to the movement of the lever, and the rim wheel is prevented " from turning back when the lever is moving the reverse way " by the clips in the boss of the stationary arm, and the for- " ward movements of the rim wheel give corresponding or propor- " tionate movement to the shaft or beam to which it is geared. " If the lever is moved always the same distance a uniform inter- " mittent motion is given to the rim wheel, but if the end of the " lever is caused to have less and less vibrating motion, the rim " wheel has a gradual decreasing motion similar to what is " required for the taking-up motion of a loom or other similar " purpose."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, February 2.—N° 293.

MAYNES, JOHN.—This invention relates to further improvements upon an invention for which Letters Patent were granted to the present patentee, "bearing date the nineteenth day of July, " A.D. 1864, the chief feature of which consists in furnishing " a constant supply of weft to the loom by self-acting means."

The improvements consist in an arrangement of mechanism wherein all those parts comprising the weft fork holder, hammer, catches, and rack lever are retained, "and the rack lever with " which the said catches and pawl are connected is supplied with " a finger or lever having its fulcrum on a rod which extends to " the opposite side of the loom where the mechanism is situated, " actuating the moveable shuttle boxes. At this point, and from " this extended rod a finger projects, from which is suspended a " weighted pendulum, the lower end of which rests upon a pawl " or catch when the weft is continuous or unbroken, keeping " such pawl out of contact with a ratchet fixed upon a short " 'slay' shaft, upon which two cams are secured; these cams " through the medium of a novel and peculiar arrangement of " mechanism, herein-after described, actuate an arrangement of " vibrating shuttle boxes. When the shuttles require changing, " the various parts effecting the change come into action and " operation in the following order:—A bracket is secured to the " slay sword which forms the central support or fulcrum, upon " which the working shuttle box, the receiver, and the supply " boxes vibrate; when the receiver and supply shuttle boxes " have not been attended to by the operative they are retained " against the breast beam by a spring catch, but when the boxes " have received attention (i.e., the old or spent shuttle taken " from the receiver box and a new or examined shuttle placed in " the supply box) the operative displaces or pulls a spring handle " supplied with three fingers; the top or first finger elevates the " spring catch, which releases the supply and receiver shuttle " boxes; the second finger is simultaneously withdrawn from the " weighted pendulum, thus causing such pendulum to drop and " keep the catch actuating the ratchet and cams out of working " contact; and the third, or bottom finger, withdraws a supporting lever from a back catch, which thus allows such catch " to come in contact with the ratchet on the 'slay' shaft, thereby " giving one portion of a turn to the cams, which action immediately causes the receiver and supply shuttle boxes to lay " against, and vibrate with the slay, the supply box is then in " readiness to supply the place of the shuttle thrown into the " receiver, when the weft breaks or becomes spent, in the event

" of which the weighted pendulum is raised by the action of the " weft hammer, rack lever, and catches, allowing the second " finger on the said spring handle to get under a projection on " the pendulum retaining such pendulum in an elevated position " until the operation of changing the shuttles is complete. When " this pendulum is raised the pawl upon which it rested is " brought into working contact with the ratchet on the slay " shaft, so that as the slay vibrates the cams actuate the vibrating " shuttle boxes in the following order :—The first action of the " cams displaces or throws back the first or ordinary working " box, bringing the third or receiver box into position to receive " the empty or imperfect shuttle; the next, or second action, " brings the supply box into the line of throw ready for the picker " to deliver the new or examined shuttle into the opposite box; " the next, or third action, brings the original or working box " into position to continue the pick, and the last, or fourth action " of cams, throws back the receiver and supply shuttle boxes " against the breast beam, where they are retained by the spring " catch until released by the operative when attended to as before " described."

[Printed, 10*d*. Drawing.]

A.D. 1865, February 3.—N° 300.

HURN, George, and HURN, Daniel.—This "invention has " reference to an improved description of driving band or belt " applicable to machinery or other useful purposes, whereby " greater strength and durability is obtained," "and consists in " the employment of a woven combination of longitudinal threads " or warp composed of vegetable or other fibres held or bound " together through the medium of a transversal weft or shute " of leather, hide, or other like material interwoven between the " said longitudinal warp, so as to form a hard and durable " selvage, the said combination admitting of other modifications " in the external facing being employed, such as the interlacing " of strips or strands of leather above and below the fabric, " placed either diagonally, crosswise, or in any other suitable " manner at alternate or intermediate intervals or spaces either " through, over, or along the same, and woven to any width or " texture required."

[Printed, 8*d*. Drawing.]

A.D. 1865, February 6.—Nº 329.

COCKBURN, William.—"Improvements in and connected " with jacquard apparatus for weaving."

"This invention has principally for its object to facilitate and " cheapen the weaving of ornamental fabrics of or similar to " the 'Paisley shawl' class, and having a perfect pattern on both " sides.

"In carrying out the invention two lift-boards, draught-boards, " or combs are employed. In each lift-board one-half of the " holes are made with their saw-draughts in one direction, whilst " the saw-draughts of the other half are in the opposite direction, " so that the inward movements of the horizontal needles will " act positively on some of the harness tails by moving them " into the saw-draughts so as to be caught and lifted, but " negatively on the other tails by moving them out of the " saw-draughts." "The harness threads are tied in regular order " alternately to the tails of each lift-board, and the tails from " the positive holes act on the warps for the upper face of the " cloth, the tails from the negative holes acting on the warps for " the under face. A 'thread' or full harness is employed " according to one modification, and in weaving, one 'bridle' of " cards is worked off by one lift-board, and the next bridle by " the other lift-board alternately, or the same bridle may be " worked off twice in succession by both lift-boards. In cutting " the cards a hole has to be made corresponding to every point " at which weft has to appear on either face." "Two heddle " leaves only instead of four require to be used in connection " with the two lift-boards in the modification herein-before de- " scribed, but a 'split' harness may be used with the other " improved arrangements, when the usual four heddle leaves will " be required."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 7.—Nº 347.

LARMUTH, Alfred Augustus.—This "invention relates to " those healds which are produced by twisting two or more " strands of wire together, and forming loops to constitute the " necessary eyes, and consists, firstly, in applying solder or other " cementing material to the said eyes for the purpose of uniting " the strands of metal at the boundaries thereof, and secondly,

" in forming the eyes in continuous lengths of wire, which are " subsequently wound in a spiral form upon the shafts."

Another part of the invention "relates to machinery for making " and winding such healds as aforesaid, the general features " thereof being that the wires are drawn from bobbins, twisted, " formed with eyes, soldered, and wound upon shafts in a " continuous length by successive automatic operations."

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1865, February 8.—N° 361.

STAATS, William.—(*A communication from Carl Spannagel.*) —"Improvements in the manufacture of skirt borderings and " linings to be applied to wearing apparel."

This invention consists in forming the " binding, tape, or thick " strong fabric," used to bind the bottom edges of skirts, " together " or in one piece with the lining fabric, by weaving it in a ribbon " or other suitable loom, and with a greater or less width of " fabric suitable for lining the lower part of a dress or skirt. " For these purposes the warp for producing the lining fabric is " arranged and worked in the ordinary manner for producing a " like fabric whilst at the selvage, or it may be at both selvages; " the warp is arranged to produce a strong tape or binding " fabric of the width desired."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 10.—N° 377.

HAZARD, Rowland Gibson.—(*Provisional protection only.*)— " Improvements in looms for weaving."

The inventor says,—" The nature of my invention consists, " firstly, in giving the required movements to the shuttle by " the force of air set in motion by the action of the working parts " of the loom.

" Secondly, in determining the precise time at which the move- " ments of the shuttle shall commence.

" Thirdly, in the peculiar construction and arrangement of " mechanical parts for effecting these objects.

" On the loom lathe, similar to those heretofore employed, " omitting the picker rods, and partially covering the shuttle " boxes at their outer ends, I place a box or air chamber of rigid " or flexible materials, or a combination of both. This box or

" chamber may have two sides, formed of wood, metal, or other
" rigid substance, the remaining sides being formed of any
" suitable flexible material. An aperture in the box or chamber
" communicates with the end of the shuttle box, but otherwise
" said box should be quite or nearly air-tight. The same result,
" however, may be obtained by forming all the sides rigid,
" one being moveable and made to act as a plunger on the
" enclosed air. This plunger may be made to move in parallel
" planes, or may be hinged at one end or side of the box, the
" movement of the other end or side producing the desired effect
" upon the enclosed air." "The inward movement of the
" plunger, decreasing the enclosed space, causes the air to move
" rapidly through the aperture into the shuttle box behind the
" square portion or body of the shuttle, giving the required
" motion to said shuttle."

"To determine with precision the time at which the shuttle
" shall begin to move, or, if necessary, to increase the initial
" velocity of the shuttle, a pin moving freely up and down with
" or without a spring may be inserted in the covering of the
" shuttle box, the lower end of the pin reaching a little below
" the top of the shuttle. The shuttle as it enters the box raises
" the pin on the bevel part of the shuttle, and it drops just within
" the cop chamber of the shuttle, holding it till, by the back-
" ward motion of the lathe, a joint or lever is struck by the
" plunger, thereby raising the pin at the proper time for the
" shuttle to recommence its motion. For this same object a slide
" or valve may be employed to cover the aperture in the air
" chamber, said slide being operated by means of a pin inserted
" therein coming in contact with a wedge or bevel either
" stationary or attached to the plunger, opening the aperture at
" the proper time to permit the air to act upon the shuttle to give
" the desired motion to said shuttle."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 15.—N° 429.

RIDINGS, William Collinson, senior.—" An improved pro-
" tector for the needles and cards used in jacquard machines."
Springs are attached to each end of the frame and needle board of the jacquard machine, and the needle board is placed so as to cover the points of the needles, " and thereby prevent them from
" *touching the* cylinder or cards until the cylinder clasps the

" needle board and moves the springs and presses the hooks " from the griff. As the cylinder moves outwards, the needle " board returns and covers the points of the needles, so that the " cards are prevented from touching them whilst the cylinder is " moving backwards or forwards, and as the points of the needles " are inside the needle board, they are prevented from being bent " by the action of the cylinder, and the cards are at the same " time protected from being torn or perforated." " When " desired the needle board may be placed on flat-headed pins or " pegs fixed to the front of the frame, and the needle board " moved outwards by springs encircling the pins, each spring " having one end against the inside of the needle board, and " the other end against the frame at the bottom of a recess " around the pin, there being perforations in the cylinder for " receiving the heads of the pins when the needle board is being " moved inwards."

[Printed, 6*d*. Drawing.]

A.D. 1865, February 16.—N° 440.

GEDGE, William Edward.—(*A communication from Edmond Dirson.*)—(*Provisional protection only.*)—" The barège stuffs which " form the subject of this invention are woven with a back or " ground in a loom, the harness of which is composed of five " reeds or slays and two treadles, and by means of two warps, " each distributed on a warp beam; one of these warps stretches, " and the other lets go one-half, more or less, according to the " greater or lesser thickness of the rib it is desired to obtain, " that is to say, that the length of one of the warps must be left " more or less long, according to the thickness of rib required."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 18.—N° 466.

OGDEN, Thomas.—" Certain improvements in mechanism or " apparatus for lubricating the cylinders of 'slashing' and " 'tapeing' machines, such machinery being employed in the " sizing of cotton and other yarns." " The improvements con" sist in the novel application and use of a small extra cylinder " to each heated cylinder, which is covered with flannel or other " absorbent material, and which presses against, and is caused to " revolve by contact with the surface of the heated cylinder.

" This small cylinder is supported in suitable bearings attached " to the framing of the machine, and is perforated with one set " of holes along its surface, parallel with its axis. The interior " of this cylinder is supplied through ordinary lubricating cups " with oil, tallow, or other lubricant, and as the small cylinder " revolves a small quantity of lubricant escapes through the " perforation which is thus supplied, and saturates the absorbent " material covering its surface. This absorbent material being in " contact with the large or heated cylinder of the machine, keeps " the surfaces of such cylinders constantly greased or lubricated, " whereby the adhesion of the yarn and accumulation of size or " dirt upon their surfaces is prevented."

[Printed, 10*d*. Drawing.]

A.D. 1865, February 22.—N° 489.

KEIGHLEY, John, and SHEPHARD, Richard.—" Improvements in circular box looms." The " improvements relate to " means or apparatus for operating the 'clicks' or catches which " are attached by means of pins to one end of what are technically termed the 'pulling levers,' to the other extremity of " which are also attached the 'pulling catches' for actuating the " circular revolving shuttle box, in order to produce any desired " change in the color of the weft employed, the chief object being " to obtain greater simplicity in detail and certainty of action. " For the purpose, instead of the ordinary levers, card pins, and " connecting rods," the patentees " employ a bell-cranked lever " or levers, having their fulcra upon a stud made fast to the " framing of the loom, the ends of the bell-cranked levers are " placed in suitable guides or brackets from the main framing of " the loom. In the bracket or guide placed immediately over the " card cylinder of the jacquard apparatus are the pins which " operate these levers. These pins are formed with heads, and " are capable of rising and falling freely, and are entirely disconnected from the bell-cranked levers. One end of each of " these bell-cranked levers rests upon one of the pins (there " being one pin for each of the levers employed), and as the cards " of the jacquard apparatus are brought in contact with one or " other of these pins it is thereby caused to rise vertically, giving " motion simultaneously to one or other of the bell-cranked " levers, and in consequence of the opposite end of the bell-" cranked levers being in contact with 'clicks' or 'catches' of

" the 'pulling levers,' one or other of these 'catches' is brought " into position to be raised by the cam or tappet levers as may be " required by the pattern being woven. The card cylinder may " be worked either horizontally or vertically, but if horizontally " a slight modification is required for this purpose; in place of " the bell-cranked levers" the patentees employ "a lever or " levers, having their fulcra upon a stud made fast to the loom " framing. These levers rest in a vertical position, and are held " in contact with the loose pins by their own gravity, and the " 'clicks' or 'catches' of the 'pulling levers' are actuated by " the bell-cranked levers. By this means the frictional action of " the pins on the cards of the jacquard apparatus, which in " ordinary looms soon produces an elongated hole, is obviated."

[Printed, 10*d*. Drawing.]

A.D. 1865, February 22.—N° 490.

MALLISON, JAMES.—(*Provisional protection only.*)—This "invention is designed for the purpose of preparing yarns or " threads, so as to render them fit for use in that description of " machines described in the Specification of Letters Patent, " granted to Henry Cooke, No. 576, A.D. 1856, and in similar " machines." "The improved method relates to the mordanting " of the yarns or threads, and consists in passing the yarn or " threads from the 'warper's beams' (that is, in a wide or laterally " distended state) through a trough or troughs containing any " suitable mordant, such as sumach, catechu, or other suitable " substance containing tannin, and on to another beam or from " a series of beams on to a corresponding number of beams (or " from bobbins on to a beam); after passing through squeezing " rollers they may be allowed to remain in a partially wet state to " absorb as much of the remaining mordant as possible, or they " may be passed very slowly through the mordant troughs to " ensure thorough saturation."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 22.—N° 491.

PARIENTE, ISAAC.—(*A communication from Leon de Moses Pariente.*)—This "invention relates to the description of scarf " principally worn in Africa, Turkey, and other Eastern coun- " tries, usually made of fine soft worsted warp and woollen weft, " and woven as an open single-twilled cloth.

" The improvements consist in manufacturing the said scarfs " with worsted warp hard twisted and fine wool weft, and in " the weaving the body or the middle portion of the scarf is to " be woven in a close fine bold twill in the method known as " 'diagonal,' the said twill to be thrown up on both sides of the " cloth, and the borders or side extremities of the scarf are to be " woven double, with twill stripes or 'herring-bone twill,' by " which means the scarfs are rendered more durable.

" The ends of the scarf may be left plain or 'faced' as it is " termed, with colored stripes or borders, and to be made with " fringes at both ends."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 22.—N° 494.

DODGEON, John, GAUKROGER, John, and SHACKLETON, William.—"This invention relates to the letting-off " motion in looms for weaving, and the improvements consist in " arranging and applying parts or apparatus in combination with " ordinary friction chains, straps, or cords, levers or weights to " the warp beam, in such manner that as the quantity of yarn or " warp on the beam is diminished the pressure thereon becomes " less in the same ratio or proportion, thus the letting-off motion " is rendered self-adjusting. This is effected by applying a shaft " under the warp beam, to which is attached a lever with a friction " roller thereon to bear against the surface of the warp. On " this shaft are also two other levers, bosses, or quadrants, to which " the ordinary friction chains, belts, or cords are attached. A " stud is fixed to each end frame of the loom, on which are " hinged levers connected to the chains, belts, or cords, and to " these levers are also attached the ordinary weighted levers; or " instead of the levers dead weights may be applied if desirable."

[Printed, 8*d*. Drawing.]

A.D. 1865, February 23.—N° 503.

BARKER, Aaron.—(*Provisional protection only.*)—This invention relates to the taking-up motion of a loom. The invention consists in the employment of a bowl pressing upon the fabric wound on the cloth roller, " which bowl is secured to one end of " a lever, the fulcrum of which is fixed to the cross bar of the " loom; to the opposite end of this lever a bell-crank lever is

" attached; which actuates a sliding pawl. As the bowl in the " aforesaid lever is depressed by the increasing diameter of the " cloth roller, the bar or rod forming the support and fulcrum of " such sliding pawl is attached to the 'slay,' thus causing such " pawl as the 'slay' vibrates to act upon a fluted cone drum " placed and secured outside the framing, and in connection " with the gearing actuating the cloth roller. The action of the " several parts of mechanism employed may be thus described:— " When the piece first commences to wind on the cloth roller, " the bowl is at the point nearest the centre of such roller, at " which time the sliding pawl is caused to act upon the smallest " diameter of the fluted cone drum, consequently giving the " maximum or greater revolution to the cloth roller; but as the " cloth accumulates and the roller gets greater in diameter, the " pawl is caused gradually to slide towards the base or greater " diameter of the fluted cone drum, giving thereby a diminishing " speed to the cloth roller until the piece is finally completed."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 28.—N° 563.

CHALMERS, David.—" Improvements in the manufacture of " textile fabrics, and in the machinery or apparatus employed " therefor." " The first part of this invention relates to certain " improvements in the mode of winding cops used in weaving, " the chief feature of which is, that when the cop is placed in the " shuttle the weft is drawn off from the outside instead of from " the inside, as at present done. The machinery by which the " cop is wound so as to be drawn off from the outside consists of a " ring, on which a wing is formed for the purpose of guiding the " thread over a short traverse at the commencement of building " the cop, so that the whole of the thread may be drawn off " without breaking. Within the ring there is placed a weight " through which the cop spindle passes, and as the cop is being " formed on the spindle the weight is by it gradually raised, " so that the distance between the thread and ring becomes increased, thus permitting a longer traverse to the thread as the " cop becomes increased in length. Instead of this last-mentioned arrangement of mechanism for regulating the length of " traverse of the thread, a wedge is passed through the guide on " the rocking shaft, which works in connexion with a lever and

" collar fastened on the spindle, and accordingly as the thick " part of the wedge passes into the guide it causes the latter to " move through a greater distance, thus giving a gradually " increased traverse to the thread. Another arrangement con- " sists in fixing to the guide a spiral or flat spring, beneath " which a wedge moves, actuated by a lever guided in its motion " by a collar on the spindle, and as the wedge is drawn out the " guide is enabled to move through a greater distance as the cop " is being built.

" The second part of this invention consists of improvements " in 'broad looms,' and consists in introducing centre cranks or " eccentrics, centre swivels, and centre framings, so as to give " stiffness to the whole machine. The loom is driven by a wheel " and pinion of any proportions that may be required, instead of " by a single motion. At the end of the connecting rods of the " crank or eccentric rod a slot is formed, so as to allow the loom " to run on while the lay stands still, thus giving the shuttle " time to run through. The improvement in weaving of goods " in 'broad looms,' such as cloths or tarpaulins, consists in " weaving them with thick strips at intervals, so as to increase " their strength, the heddles being arranged to shed the warp for " this purpose."

[Printed, 8*d*. Drawing.]

A.D. 1865, March 2.—N° 583.

BROOKS, Samuel.—" Certain improvements in and applicable " to looms for weaving." This invention relates to temples, " and it consists in an improved mode of connecting the rod to " which the temples are secured to the breast beam or other con- " venient part of the framing of the loom, so as to enable the " temples to be set at any required distance apart to suit the " width of the fabric that is being woven. The rod to which " the temples are secured is a plain bar of round or other shaped " iron, instead of being forged with eyes as heretofore customary, " and this rod is supported in two sliding blocks, to which the " bar is secured by bolts with V heads; the blocks are placed at " any convenient distance apart to suit the width of the fabric, " and they are held by studs bolted to the breast beam, or they " may be connected to springs attached to a cross rail."

[Printed, 8*d*. Drawing.]

A.D. 1865, March 4.—N° 617. (* *)

AKEROYD, Abraham.—" An improved process and apparatus " for dyeing and preparing cotton, worsted, and silk warps," having special reference to the warps used in fancy weaving (including checks) and those " used in the getting up of patterns " as samples where it is desired to have a great variety of patterns " from one warp." The process consists in dyeing the warp, in lengths instead of all at once. " To the periphery of a wooden " roller provided with an iron axis running on a suitable framework (and placed in the front of an ordinary warp dressing " apparatus)," pegs are attached "at such distances from each " other as the pattern required may necessitate." Over these " pegs are passed " to the receiving warp beam such ends of the " warp as do not require to be dyed, or which require dyeing " another colour than those contiguous to them. The remaining " ends of the warp to be dyed are passed on to an ordinary " beam, and the dye liquor required being placed in suitable " vessels underneath the same by means of a winch upon the " end of the axis." Those threads are raised up, "in contact " with the pegs which do not require dyeing, or which require " dyeing a different colour," tieing the same together, " lowering " the roller by an ordinary mechanical appliance in order that the " ends to be dyed may be conveniently dipped. The stick used " in dressing is now passed through the warp and run up to the " extremity of the length to be dyed. An ordinary slay is then " introduced for the purpose of separating the threads more " effectually. The threads to be dyed are now dipped in the " liquor placed underneath to such length as may be required, " the 'stop' being made by tyeing the threads together," &c. " The length so dyed may now be passed, together with those " threads passing over the pegs (which it is not requisite to dye), " on to the warp beam and dressed in the usual manner. Another " length may be dyed any other desired colour, and so on to the " end of the warp." " When it is desired to dye the threads " passed over the pegs, those already dyed may be passed over " other pegs, and raised in the manner before described." " By " another method a grey warp, for instance, may be tied or " threaded into a slay, and 'males' similar to 'harness' used, so " that each end of the warp is independent; then by means of a " 'card' roller the ends may be lifted which it is not desired to

" dye." Instead of the wooden roller having a pegged periphery as first described, " the warp may be passed through an ordinary " slay, and the ends which require dyeing may be tied by the " fingers ready for dipping by hand." By this plan, considered more useful than the mechanical appliances before named, " a " manufacturer has simply to tie up the warp in the rough in " such lengths and in such proportions as the pattern required " may necessitate."

[Printed, 4*d*. No Drawings.]

A.D. 1865, March 8.—N° 647.

WISE, FRANCIS. — (*A communication from William Bolivar Davis.*)—(*Provisional protection only.*)—" An improved packing " for piston rods and other rods." " This improved packing " consists of a body or cord composed of canvass or other textile " fabric or fibrous material, round which is woven, interlaced, or " braided a fabric composed of fine wires."

[Printed, 6*d*. Drawing.]

A.D. 1865, March 17.—N° 750.

BULLOUGH, JAMES.—The patentee says,—" This invention " consists in certain modification or improvements of the invention entitled 'Improvements in Looms for Weaving,' for which " Letters Patent were granted to me, dated April 14, 1864, No. " 936. In that invention I placed a slide or rod on or near the slay " cap, and fixed on the rod a number of forks or combs."

" In my present improvements I employ the forks, whether " with single or double prongs, for holding back the weft in a " line parallel or nearly so with the reed, and cause the forks to " be in position for holding the weft before the shuttle passes " across the race of the slay, the weft being held sufficiently near " the reed for the weft feelers to descend soon enough upon it. " The said forks are moved back by causing a lever on the rod " which carries them to come in contact with a spring bar when " the slay is moving back, and they are moved forwards out of " the way of the cloth, when the weft is to beaten up, by a lever " and spring or weight, there being adjustable stops to determine " the extent of the movements."

" In another arrangement I cause the weft to be held in a line " parallel or nearly so with the reed, by employing pins working

" vertically in holes or guides in the slay, the pins being raised to " hold the pick of weft for enabling the weft feelers to descend " quickly upon it, and depressed to clear the cloth when the reed " is beaten up by means of levers having bowls working on or in " cams or inclines fixed to the breast beam; or the levers are " raised up and down by attaching to the floor or framework of " the loom cords and springs working in connection with the " movement of the slay.

" In another arrangement I fix two or more pins in the slay at " sufficient distance from the reed to allow the shuttle to pass " across the slay, which pins are for the purpose of holding the " weft in a similar position to that before described; and for " enabling the pins to clear the cloth when the reed is beating up, " I fix thin brackets on the breast beam, and raise the cloth upon " them.

" In another arrangement I employ compressed air for blowing " the pick of weft to or near the reed after it has been thrown " across by the shuttle for enabling the weft feelers to descend " without loss of time. For this purpose I place a pipe at the " front of the slay, and form in it and the slay a number of per- " forations, and connect the pipe to a bellows or other apparatus " for compressing the air, the apparatus being worked by the " movement of the slay, or by an eccentric on the crank or tappet " shaft; or, when desired, I fix jets or tubes on the pipe pointing " towards the reed.

" In wide looms great inconvenience has been felt when the " operative has had to attend to the under working parts of the " machinery, in consequence of the back bar being in the way. " In order to obviate this defect I alter the shape of the said bar, " and leave gaps or spaces between the middle and ends, the " bottom of the gaps being attached to or forming part of the " bed plates, and the tops being held by connecting bars or rods " capable of being easily detached."

[Printed, 1s. 6*d*. Drawings.]

A.D. 1865, March 18.—N° 759.

PILLING, Edwin, and HARPER, John.—This " invention has " special reference to a weft stop motion for woollen looms, but " *may also* be applied when other materials are woven.

" The apparatus consists of an instrument, behind which the " weft passes when the shuttle is thrown. When the beating-up " takes place the weft presses against this instrument and thus " causes it to turn upon a centre and liberate a catch which had " previously held up a sliding tube. This tube is now at liberty " to be drawn or to fall downward by its weight, and by so doing " and by lever connections, moves a stop out of the path of a " stud which vibrates with the slay, but if the weft had not been " present then the instrument above-mentioned would not have " been turned upon its centre as above described, and the stud " upon the slay would have arrived in contact with the stop " whereby the usual stop rod would have been shifted and the " motion of the loom arrested." The stop above-mentioned is mounted upon a sliding bolt, " which is drawn backward by a " spring. When the stud strikes the said stop it distends this " spring before moving the stop rod, and upon the said bolt " being liberated the above-mentioned spring draws the slay " backward. The falling tube is raised again by a pin or pins " on the tappet shaft, and which act upon levers and rods for the " purpose of moving the stop on the sliding bolt into the path of " the vibrating stud. The part which the above-mentioned pins " act upon turns upon a centre in one direction only, so that the " loom is at liberty to be turned backward."

[Printed, 10*d*. Drawing.]

A.D. 1865, March 20.—N° 774. (* *)

PHILIPPSTHAL, Isidor.—" Improvements in the manufacture " of yarn so as to render same applicable as a substitute for " woollen yarn for manufacturing into shawls and other textile " fabrics."

This invention relates to " utilizing waste hemp and flax, known " in the trade as tow, and consists in cutting the same into pieces, " and then mixing the same with wool in the proportion of about " two parts of the tow to one part of wool, which may afterwards " be spun into yarn by ordinary spinning machinery, and then " woven " in ordinary looms. The yarn can be dyed of any desired color.

The object and intention of the invention is to produce a cheap material.

[Printed, 4*d*. No Drawings.]

A.D. 1865, March 23.—Nº 810.

MACAULAY, James, and WATSON, Robert.—(*Provisional protection only.*) — This invention relates to the weaving of ornamental fabrics so as to present a distinct and complete pattern on both faces. "There are two classes of these double-" faced or reversible shawl fabrics, in the weaving one of which " two sets of warps are used, one for each face, or twice as many " warps as are used for a single-faced shawl fabric, whilst in " weaving goods of the other class a single set of warp is used, " or not more than is required for a single-faced shawl fabric.

" The present invention comprises improved modes of weaving " shawl fabrics of the latter class, that is, single-warp double-" faced goods; and in carrying it out according to one modi-" fication a double-legged jacquard harness is used with two lift " boards, whilst a single warp thread is passed through each " mail. The warps are entered through four heddle leaves in " front of the harness, the action of two of the leaves affecting " the upper face of the cloth, and that of the other two the " under face, and supplementing the action of the pattern " harness in such a way as to produce the requisite 'plain " 'cloth' texture on both sides of the fabric. Each harness " cord or tail lifts two mails, but the heddle action keeps down " one of the two warp threads thereby raised at one shed, and " the other at the next shed. A single-legged harness may be " used, but will require double the number of cords or tails, and " a single lift board only may also be used. Two heddle leaves " may also be used instead of four, but in that case, instead of " each warp thread appearing on one face only, it will appear " alternately on both faces."

[Printed, 4*d*. No Drawings.]

A.D. 1865, March 23.—Nº 815.

MACKENZIE, Duncan. — " Improvements in machinery and " apparatus for indicating, selecting, and reading in such cords " of designs or patterns as are transferred and perforated on " cards, papers, or their substitutes, and for reproducing and " repeating duplicates of such operations on such materials for " jacquard machines."

To read in a pattern the patentee mounts it on an endless web or band, and passes it over a number of rollers. On one of these rollers he places a spur or ratchet wheel, " which is geared " into by suitable pinions, levers, and catches, which receive " their motions from the main working parts of the machine, " so that the rollers over which the endless band passes " receive a slow and intermittent motion so as to bring the " pattern into line with a set of pointers or index fingers. " The pointers are mounted on a long horizontal bar, and are " set on it from each other at a distance of, for instance, exactly " twelve squares apart, and each one of these squares represents " a portion of the pattern which is to be read in. The bar with " its pointers receives a longitudinal, horizontal, intermittent " motion, so as to bring each of these pointers to point to the " next square to the right until each pointer has pointed to " twelve squares in succession, which will bring each pointer so " far to the right that it will just finish its move on the square " preceding that square on which each pointer to the right " began. The bar and pointers receive these horizontal motions " for every single vertical motion of the rollers and pattern, but " the rollers and pattern receive motion only after each pointer " on the bar has passed over twelve squares in succession " intermittently, which number, multiplied into the number of " pointers, represents the number of pattern holes that can ever " be punched in one card, exclusive of the lace and stud holes " for six hundred cords. Allowing the number of pointers on " the bar to be fifty-one, and placed twelve square apart, to " correspond with the pattern, this will give six hundred and " twelve pattern holes. These pointers are all numbered from " left to right. There are also a complete set of keys, like " pianoforte keys, mounted in three rows, to correspond to these " pointers, one finger key to each pointer. The number on the " keys and their corresponding pointers must coincide. Each " key is connected through a rod and lever to a bar which rises " upright, or nearly so, when its key is depressed. The upper " end of the bar passes the end of its corresponding punch such " a distance that its end can be caught or laid hold of by a bar " mounted on two bell-crank arms, which is made to move " forward by means of the other arms of the bell-cranks, being " connected by descending rods to the short arms of treadle " levers, the long ends of which are connected together at the " front of the machine by a board which is acted on by the foot " of the operator. When one or any number of the pointers

" points or point to any portion of the pattern in the horizontal " row of squares a key or keys corresponding to the number or " numbers on the pointer or pointers is or are depressed so low " that a small catch or catches formed in the key rod or rods " lays or lay hold of a small bar in front of the machine, and is " or are kept for a time only in that position or positions. By " the key or keys being lowered the back bar or bars has or " have been raised high enough to be laid hold of by the bar on " the bell-crank arms. The treadle is then depressed by the " foot, and the bar on the bell-crank arms sweeps forward and " takes hold of the upper end or ends of the rod or rods and " forces it or them forward, and take or takes its or their " corresponding punch or punches forward at the same time, " and forces it or them through the blank card, which has been " fixed in between two perforated plates by a hand wheel and " screw, and the squares in the pattern are thus read in and " punched on the cards."

The repeating machine is described by the patentee as follows: — " In this machine I place a square tumbler in " adjustable bearings on the top of each end of the machine. " These tumblers have their sides to correspond to the breadth " of the cards and their lacings, and are mounted with studs on " which the stud holes of the cards take. Rollers are also " mounted on the top of the framing between the tumblers to " bear up the slack of the cards, which would otherwise hang " down between them. The cards hang perpendicularly, or " nearly so, in front of the tumbler nearest to the front of the " machine, and also over and down from the back tumbler. " The chain of cards may be made into an endless band if " necessary. One of the cards from the front tumbler hangs in " front of a guide plate, through which the points of a complete " set of needles, mounted in a moveable frame, pass, each needle " having its own guide hole. These needles are mounted in the " frame in twelve horizontal rows of pattern holes, there being " fifty-one in each row, exclusive of lace and stud ones. The " holes in the card that hangs in front of the guide plate " coincide with the guide plate holes. In front of the card there " is another plate, fixed with a similar number of holes. This " plate is a sufficient thickness to correspond to the length of the " punches which lie at rest in it, and which I call the stock " plate. At a small distance in front of this plate another plate,

" which I call the centre plate, is fixed within the framework. " This plate is of such thickness that about one-half of the " punches shall project past the front and through a thin plate, " which I call the recess plate, supported on studs in the last " plate. The punches are of two diameters, the portion or point " ends which punch the cards are the smallest, and their back " portions are the thickest. The holes in the stock plate allow " these portions to pass easily into it, while the holes in the " plate in its front are of two diameters, so that the punches will " fit easily into them forward to shoulders where the different " diameters of holes meet. On the front of the plate, on suitable " guide pins, the blank cards to be punched are placed with " their under edges on the guide pins, and their ends supported " on ends of similar pins. Now supposing a punched card in " the chain is about to be repeated. The card in the chain " must hang down behind the thick stock plate in which all " the punches for the present rest. The sliding frame, with " the mounted needles is drawn forward on suitable slides by " properly-shaped cams on a cam shaft by means of connecting " rods. The needles pass through the guide plate, and wherever " there are holes in the card hanging in front of it the needles " pass through them and push the corresponding punches in the " stock plate over the space between the stock plate and the " plate in front of it, and right into it, so that the shoulders of " the punches shall rest against the shoulders in the holes in the " plate where they are left. The needles which come up against " a blank place in the card when they were being drawn forward " are kept back by the card and cannot touch a punch in front " of them, but allow them to rest in the stock plate. The " needles have helical springs mounted on them, and abut " against a small washer fixed on each and against the inside of " the back part of the frame; these springs give way and allow " the frame to be drawn forward on to them until the end of its " stroke, when at the return stroke they come back with it again. " It will be seen that wherever there has been a hole in the card " to be repeated, one of the needles has entered and pushed a " punch from the stock plate to the plate in front of it. Whenever the needles have been drawn a suitable distance back " from the punches a stop plate of metal is pushed up between " the two plates by means of suitable cams, rods, and levers, and " so prevents the return of the punches or locks them in the

" plate. Another perforated plate, which I denominate the die, " in front of this is now drawn back on to the blank card by " means of cams and rods, and forces the card on to the points " of the punches which have been locked in the plate, and thus " punch the proper holes in it. Another plate, which I term the " comb, with needles fixed in it, one for each hole in front of the " last plate, and which slides on studs in it, is now brought back " so that the needles will pass back through it and push the " punches back, the stop or lock plate having in the meantime " been lowered into the stock plate. The card is thrown off from " the face of the thin plate by means of springs between it and " the centre plate. The plate with the fixed needles, the comb, " and the die plate are now drawn to the front and another " blank card inserted. When the moveable needle frame was " being drawn back by means of stops fixed on it acting on the " lower end of a lever which is centred on a stud fixed in the " side frame; the upper end of this lever is jointed to rods with " catches which lay hold of one of four pins or teeth in the end " of each tumbler, and so tumble another square over and drop " a fresh card of this chain in front of the moveable needles, and " so the operation may be proceeded with until all the pattern is " repeated."

[Printed, 6*s.* 4*d.* Drawings.]

A.D. 1865, March 23.—N° 824.

CASTREE, George Henry, and CASTREE, John Alfred.—" The object of this invention is to weave in power looms at one " and the same time two pieces of fabric on the same level and in " the same front line, each with perfect inside selvedges." The patentees " make the yarn beam of sufficient length to carry two " warps, or employ two separate yarn beams. The said warps pass " between the dents of two reeds on the same level and in the " same line, and the reeds are attached to one lathe or batten. " Each warp has its separate and independent shuttle or shuttles " where the nature of the work requires more than one color in " the weft working across its own width exclusively, and in the " centre of the lathe there is a box or boxes, or receptacles, where " the nature of the work requires various colors of weft provided " with swells and springs for the reception successively of any " shuttle or shuttles belonging to either warp, the shuttles being

" propelled from each box at the outer end of the lathe by an " ordinary picking stick, one picking stick to each end, and from " the inner or central box or boxes by one picking stick, which " latter picking stick works a picker faced at both ends. The " centre picking stick passes through a slot in the lathe, or " traverses a space left between the two reeds, and is worked by " tappets or projections on the tappet shaft of the loom, or on " shafts parallel with the shuttle boxes, there being in all cases " three pickers and three picking sticks."

[Printed, 10*d*. Drawing.]

A.D. 1865, March 25.—N° 845.

MILTON, JAMES.—(*Provisional protection only.*)—" This invention " relates to improved automatic mechanism to be applied to " looms for weaving in connection with the take-up, and in connection " with the weft fork stopper details, by which the loom is " stopped when a weft thread breaks."

" In one modification there are three catches in connection " with the take-up ratchet wheel, the propelling catch worked by " a lever from the lathe, or otherwise, the holding catch, and the " recoil catch. The horizontal spindle which carries the weft fork " is fitted with a lever, which lifts the propelling and holding " catches out of gear when the spindle rocks on the failure of the " weft. Even with this immediate action the take-up will have " moved a pick too many, but this is corrected by a recoil catch " allowing the ratchet wheel to go back one tooth. The recoil " catch is simply a catch formed with an elongated hole for the " passage of the pin on which it is centred, this elongation of the " hole allowing of the recoil. The horizontal spindle is also fitted " with a holding-up appliance, which, when the loom is restarted, " prevents it from returning, and thereby letting down the propelling " and holding catches. In a simple arrangement for this " purpose, a lever fixed on the spindle has a fixed spring catch-" piece bearing on it, which keeps it steady in either of its two " positions, but allows it to move on the application of sufficient " force to overcome the spring."

" In another modifiation there are only two catches in connection " with the take-up ratchet wheel, and these are jointed upon " different arms of a lever, and both propel the wheel forward, " one when the lever is moved in one direction (by the low shaft,

" for example), and the other when the lever is moved back. The " weft fork spindle is fitted precisely as in the first modification, " but with the lever on it situated so as to lift one of the two " catches, and when the weft fails, the take-up will recoil to the " extent of or miss one or two teeth as required."

[Printed, 4*d*. No Drawings.]

A.D. 1865, March 29.—No. 889.

HOLROYD, RICHARD, and BOLTON, JOSEPH HOLROYD. —This "invention is designed for the purpose of drying or dispelling moisture from 'warps' of cotton or other fibrous sub" stances," and is "particularly applicable after such processes as " sizing or dyeing. The improvements consist in passing the " 'warps' in their wet state over a series of rollers peculiarly " arranged in a chamber or room containing heated air."

" The improved arrangement of apparatus consists of a lofty " chamber," "near the top of which a double series or row of " rollers are mounted in brackets, bars, or bearings, one series " above the other, a similar arrangement of rollers being placed " at the lower part of the chamber. The rollers at the extreme " top and bottom of the chamber are of large diameter, and are " furnished with exterior ribs parallel to the axis of each, which " are tapered from the centre of the length towards the ends, over " which the warps pass; these rollers are driven by gearing. " The second series, which are vertically above and below the " large rollers being smooth on their surfaces and are simply " carriers for the warps. Two warps are passed through the " apparatus at the same time, each warp passing under the first " large bottom roller (one at each outside or extreme width), " whence it passes up the chamber to the first small roller, and " then down again to the second large roller, and so on until it " passes round the last large bottom roller, from which it passes " to the last large top roller, and then down again to the next " small roller, which causes it to have its course first between one " series of large top rollers and one series of small bottom rollers, " and between the opposite series of small top rollers and one " series of large bottom rollers, which gives great length of traverse " in a small space; the warp having passed about four times " around the rollers then passes out of the chamber in a dry state. " The air with which the chamber is supplied may be heated from

" below by means of any suitable stove or heating apparatus, and
" the chamber is ventilated and the moisture removed by two
" down draughts taken from over the centre of the chamber,
" which are connected with a chimney or up-draught outside the
" chamber."

[Printed, 10*d*. Drawing.]

A.D. 1865, March 30.—N° 901. (* *)

TURNER, Archibald.—" Improvements in machinery for " winding yarns or threads on to quills, spools, and bobbins."

The object of this invention is so to wind yarn or thread upon spools, or bobbins, or quills that it will pass therefrom when being drawn off at a more uniform rate of tension than can be obtained by the ordinary system of winding. To this end, instead of employing guides attached to a traversing bar and actuated by a heart so as to wind the yarn or thread in uniform layers upon the spool, quill, or bobbin, as usually practised, the patentee causes the heart "to regulate the traverse so as to wind the bobbin " hollow in the middle, that is, gradually to taper it from the " ends towards the centre," and when "the ends of the bobbin " are full" the traverse of the thread guide bar is gradually shortened "so as to partly fill up the hollow centre."

In one of the arrangements described the traversing bar with the guides is actuated by a vertical vibrating lever worked to and fro by a heart, the lever having a moveable fulcrum, which is operated upon by a cam in such manner as to shorten the traverse of the guides as the work proceeds, this cam being also made to stop the machine when the bobbins or spools are filled. The bobbins in this case work horizontally; but in another arrangement, which is adapted for winding "taper or conical bobbins," the latter are mounted on vertical spindles, and the thread guides are moved up and down by fulcrum levers and cams, certain rocking shafts, levers, and other appendages, along with a heart, being introduced into the apparatus, and the effect of the whole being that as the thread is wound upon the bobbin "it is made to " cross and recross, and thus to lock each previous layer of " thread," which will prevent the layers from falling from the bobbin or becoming entangled with each other.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, March 31.—N° 907.

BRIDGE, LANG.—" Improvements in looms for weaving." The patentee says,—" The object of this invention is to dispense with " the emery beam, and consists in using an ordinary wood beam " or roller on which the cloth is taken up as it is woven, and to " prevent it slipping I arrange an apparatus to cause an additional rod to press upon the cloth on the beam or roller, and " thus keep it in a tight and regular position, but to allow this " rod to adjust itself to the increasing diameter of the cloth as it " is taken up. I attach a rod to the aforesaid apparatus and " connect it by a slide to another apparatus on the framing of the " loom. Part of this apparatus consists of two brackets resting " on a frame or lever, and having each a slot which clips a rim " wheel and are kept up to their places by springs; as the cloth " increases in diameter the rod upon it rises and the other rod is " depressed, so as to give a gradually diminishing stroke to the " frame or lever which carries the slotted brackets and gives a " gradually decreasing speed to the taking-up motion."

[Printed, 10*d*. Drawing.]

A.D. 1865, April 1.—N° 928.

PEARCE, ALFRED WILLIAM.—" This invention relates to a " certain new arrangement of those parts of looms used for " weaving which are employed to give motion to the pick-stick, " whereby the shuttle is caused to traverse the warp. The chief " part of the arrangement consists in causing the cam, whereby " motion is communicated to the pick-stick, to move the conical " roller in a direction the reverse of that at present employed. " The shaft upon which the cam is fixed moves or revolves in " the same direction as formerly, but the shaft carrying the friction roller upon which the cam or tappet strikes is arranged on " the reverse side of the cam, the reciprocating motion of the " cam being thus communicated direct to the upper side of the " roller. Instead of the friction roller, upon which the cam or " tappet strikes, being fixed upon the vertical shaft by which in " existing arrangements of picking motion the motion of the " cam is transmitted to the pick-stick, it is in the present " arrangement attached to a short reciprocating shaft, this latter " being connected by a link to a short crank on the picking

" shaft, by the intervention of which the motion of the rod " and picking movement take place in the same direction as " formerly."

[Printed, 6*d*. Drawing.]

A.D. 1865, April 11.—N° 1032.

TURNER, Archibald.—This invention of "improvements in " looms for weaving relates, firstly, to an improved method of " actuating the batten so as to shorten its motion and obtain a " dwell." "Instead of connecting the batten to the crank of the " driving shaft by means of a connecting rod in the ordinary " manner, the batten is attached to a sliding box or block, which " works to and fro in horizontal guides. This sliding box or " block is connected by a rod or link to a vertical vibrating lever " or arm, which works on a pin or stud fixed in the framing. " The crank of the driving shaft is made to work in a curved " slot formed in this vibrating lever, and as part of this slot corresponds with the arc described by the crank in its revolution, " it follows that during a portion of the revolution of the crank " the batten will be allowed to dwell." "As a modification of the " above arrangement the same object may be effected by means " of a pair of cams on the main driving shaft, one at each end " of the loom, instead of cranks as in the arrangement just " described."

The second part of the invention "relates to a novel mode " of constructing the shuttle plank or batten of looms for weaving " narrow fabrics of, say, from two to six or eight inches wide, and " consists in the employment of anti-friction rollers or small " trucks, for the purpose of holding up the shuttles in a horizontal " position while they are being driven through the shed."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, April 13.—N° 1061.

TURNER, Christopher, and ROOM, Thomas.—"Certain " improvements in looms for weaving." "The improvements " consist, first, in the use of an extra roller supported in bearings " attached to the framing above the warp beam; this roller when " revolving obtains the necessary friction for delivering the warp " from the beam by means of a stationary bar or rod over which " the warp passes, from which it passes round the said roller and "over a fixed beam in its progress to the cloth roller. Upon one end of the yarn roller is a worm wheel gearing into a worm secured on a shaft which extends to the front of the loom, at which part is a spur wheel gearing with another which are 'change wheels,' the latter being secured on a short shaft on which is secured a ratchet wheel of peculiar construction, and consists in each separate tooth being in the form of a pentagon. This wheel is acted upon by a lever supplied with two pawls, the motion of which is obtained by a rod and lever in connection with the rocking shaft or fulcrum of the 'slay sword.' The upper pawl when the loom is at work and the weft continuous or unbroken actuates the said ratchet, which transmits through the arrangement of mechanism herein-before described a forward or delivery motion to the yarn from the warp beam; the under or second pawl when the weft breaks and the loom is stopping is brought into contact with the ratchet, giving it a reverse or backward motion, which is likewise transmitted to the yarn; this is accomplished by means of a spring wire or elastic cord connecting the lever and pawls with a finger projecting from the catch rod under the breast beam. This rod is acted upon by the weft fork lever when the loom stops in such a manner as to release the spring in connection with the aforesaid pawls, the contraction of which raises the top pawl out of contact with the ratchet, at the same time bringing the second or lower pawl into action, which reverses or stops the progress of the yarn immediately the weft breaks, thus preventing any picks being taken up during the absence of weft, and thereby preventing 'cracks' in the cloth. The regular and even tension which is given to the yarn and cloth when being taken up is obtained by means of a flat bar or rod which is caused to exert a differential pressure upon the cloth as it accumulates upon the cloth roller. From the ends or bearings of this flat pressure bar or rod a lever projects, which is attached at the opposite side of its fulcrum to a chain passing over a pulley; the opposite end of this chain is secured to one end of a flat blade or spring lever, the opposite end of such lever being secured to a bracket fixed to the 'slay sword;' from which bracket a slotted bar projects carrying an adjustable fork which clips the blade spring lever; for example, when the cloth is first taken up by the cloth roller, the spring lever is elevated so as to be embraced by the said fork furthest from the

" fulcrum, thereby causing the greatest amount of pressure to be " given to the pressure bar on the cloth roller, but as such roller " increases in diameter the length or throw-off of the spring lever " is lengthened, consequently reducing and giving a diminishing " pressure to the cloth roller until it attains its greatest diameter, " whereby the cloth and warp is maintained at one even tension " throughout the entire piece."

[Printed, 10*d* Drawing.]

A.D. 1865, April 17.—N° 1070.

SMITH, MARK.—" Certain improvements in looms for weaving." The object of the first part of this invention is to render the stoppage of the loom simultaneous with the action of the weft motion. The patentee employs " a hook or hooks which are made to rise " through the shed in front of the shuttle race, at about the middle " thereof; these hooks are attached to a lever connected to a " light shaft passing under the lay, to the other end of this light " shaft is fixed another lever, which is raised and lowered by a " tappet on the crank shaft or other suitable driving part of the " loom, another tappet is also employed to work the lever which " passes to and fro under the feeler. When the weft has crossed " the shed the hooks in descending bear on the weft and hold the " feeler clear of the lever passing to and fro under it; but when " the weft fails, the hooks, lever, and feeler descend, and the loom " is instantly stopped by the action of the feeler on the usual " knocking-off lever."

Another part of the invention " consists in combining with the " above weft motion a driving pulley loose on the driving shaft " and connecting it thereto by a clutch box, the lever which gives " the lateral motion to the driving pulley applies a break to the " crank shaft, thereby suddenly stopping the loom when the weft " breaks."

Another part of the invention " consists in making the jacks " with an open slot fitting on the fulcrum stud, and in holding " the jacks by a pin acting on the top part thereof, by this means " the jacks can be removed from the loom when requisite without " taking the whole set of jacks down."

Another part of the invention " is applicable to weaving " figured or plain leno and other crossed fabrics, and it consists " in furnishing the loom with a double drop box at each end of

" the lay, and a moveable reed or comb acted upon by a tappet; " also in connecting the back bar by radius rods to the reed or " comb, and connecting the reed or comb by radius rods to " fulcrum studs attached to the breast beam, to prevent the " abrasion of the warps in the eyes of the needles or dents of the " reed or comb; also in holding the lower warp by a cross bar " covered with plush or other suitable material."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1865, April 19.—Nº 1086.

ANDREW, JAMES EDWARD HYDE.—" Certain improvements " in looms for weaving." The patentee says:—" The first part " of my invention consists in the application of two series of " tappets of different heights for governing the position of the " shuttle box; between these two series of tappets is a bar with " an antifriction bowl, which bar slides in a frame and is moved " to and fro to bring the bowl in line with the various tappets " according to the shuttle box required by means of a tappet " chain or other equivalent, each tappet or pair of tappets always " acting on its corresponding compartment of the shuttle box. " The above combination of tappets, bar with antifriction bowl " and frame, is also applicable for varying the position of the " needle board, the pattern cylinder, or other parts of looms " employed in producing different patterns or changes; or when " similar tappets are applied to act on bowls on each end of a " lever or bar, the lever or bar is made to slide in a frame " oscillating on a centre when acted upon by the tappets."

" Secondly, my invention relates to the shedding motion, and " consists in having two or more pattern cylinders and sets of " cards one above the other, or alongside of each other, so that " any cylinder and cards may be brought into action when " desired with the needles connected with the hooks for lifting " the warp threads, one set of cards or the cylinder only working " the needles at one time, the cylinders or cards out of action " or not employed in weaving their respective patterns, are not " allowed to revolve, but when desired begin again at the same " part of the pattern at which they left off; the cylinders are " provided with pinions or lock wheels which are turned round " by a corresponding pinion or pin wheel, the position of which " is governed by any of the apparatus above described for

" altering the position of the shuttle box, or by ordinary tappets " and levers, or pattern chains or barrels.

"Thirdly, my invention consists in dividing the needle board " or the jacquard cylinder, and the cards also if desirable, into " sections, so that any sections or divisions may be raised, " lowered, or shunted to cause the corresponding heddles to " weave different patterns without altering or interfering with " the position or weaving effect of the other sections or divisions. " Each section or division is acted upon by a rod, shaft, or tappet " put in motion by a chain or other pattern surface.

" Fourthly, my invention consists in changing the position of " the needle board of jacquard machines or 'dobbies' by means " of two tappets, with two or more corresponding lifts on each, " one of these tappets is connected with the pattern chain, the " two tappets are connected by a chain or other equivalent to " make them act simultaneously, or a single tappet may be made " to act on a rod or lever connected to the needle board.

"Fifthly, my invention consists in driving the cylinders of " jacquard machines or 'dobbies' by means of a chain passing " around a pulley on the fulcrum shaft of the swing frame, and " another pulley on the jacquard or 'dobby' cylinder; the " pulley on the swing frame shaft is driven by a star wheel " actuated from any convenient part of the loom, and the " direction of motion of the cylinder can be reversed by a double " catch box gearing alternately when desired into corresponding " catch boxes fixed to bevel or lock wheels running in opposite " directions.

" Sixthly, in an improvement on previous Letters Patent " granted to me on the 9 April 1862, No. 1007; this improvement consists in driving or turning the small cam chain barrels " (referred to in the third part of the Specification of the said " Letters Patent) from an intermittant or other wheel, or by a " catch, in such a manner that when a particular projection or " projections on the main chain shall pass over the barrel, it " shall put the cam barrel into gear, so that it will be turned one " link, and thus, according to the link of the cam chain that has " been brought up, a corresponding row of pegs on the main " pattern chain will be brought into operation.

" And, lastly, in placing the pegs or pattern surface on pattern " chains in different positions or rows, one behind the other, " and making them of a uniform or of different lengths or

" heights, or of different sizes; the pegs or other surfaces are " acted upon by feelers or other equivalents, so that each series " may be employed or connected to operate or indicate the " changes required for the particular motion or part of the loom " with which it is in communication."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1865, April 24.—N° 1142.

EASTWOOD, Charles, and EASTWOOD, George.—(*Provisional protection only.*)—"Improvements in self-acting temples " for looms."

The improvements consist in mounting spiked rollers " in " frames, so constructed and applied as to be capable of sliding " and being adjusted at the point of nip to hold on the last shoot " of weft at the time when the pick is being made, and then " caused to recede a little by the action of the lathe or batten at " the beat-up thereof, to avoid coming into collision or contact " with the reed. An adjustable finger projects from the moveable " frame, which is set so that the front of the batten or shuttle bed " will strike against it just before the lathe arrives at the end of " its stroke, forcing the temple back against the pressure of a " spring, which on the return of the lathe presses the temple into " position again ready for the next shoot of weft."

[Printed, 4*d*. No Drawings.]

A.D. 1865, April 29.—N° 1200.

DODGE, George Pomeroy.—"Improvements in pickers for " looms." This invention consists "in constructing pickers of " india-rubber, vulcanite, ebonite, or a mixture of india-rubber " and such other ingredient or ingredients as will give to the " composition the required toughness and density.

[Printed, 6*d*. Drawing.]

A.D. 1865, May 5.—N° 1261.

WADSWORTH, Joseph, DUSSET, Henry, and McMURDO, James.—"Improvements in jacquard and indexing machines." " This invention consists in an improved arrangement of hooks " and needles for the purpose of dispensing with the spring box " and springs of jacquard machines, and also with one set of " needles in the double-action machine. The hooks are guided

" at the bottom in the ordinary bottom plate, and at the top in
" strips of wood or metal, each strip serving for a row of hooks.
" Between the bottom plate and strips there are two griffs for
" for raising the hooks, and one needle acts upon two hooks, so
" that when one end of the needle is pressed by a blank in the
" card, one hook is pushed out of the way of its corresponding
" griff without interfering with the other hook, and a similar
" effect takes place when the other end of the needle is pressed
" by another blank, the hooks returning to their original positions
" by their own elasticity. In the single-action machine there are
" as many needles as hooks, but the spring box and springs are
" dispensed with by the elasticity of the hooks, and similar hooks
" and needles can be applied to indexing machines employed for
" working a number of shafts or healds."

[Printed, 1s. 4d. Drawings.]

A.D. 1865, May 9.—N° 1281.

GORTON, James.—(*Provisional protection only.*)—" Improve-
" ments in the manufacture of a certain description of woven
" fabrics called 'Turkish towelling.' "

"The improvements consist in weaving a fabric of somewhat
" open texture with a warp and weft of silk waste which has been
" previously made into yarn, and which presents an uneven or
" 'knotty' appearance and texture. When the warp and weft
" of this material is combined in weaving it forms a fabric, the
" surface of which is covered with 'tufts' or 'knots," which fill
" up the interstices left between the open warp and weft, which
" 'knotted' surface absorbs moisture to a great degree, and
" is also peculiarly soft and agreeable to the skin."

[Printed, 4d. No Drawings.]

A.D. 1865, May 10.—N° 1298.

MELVIN, James.—" This invention relates to certain improve-
" ments in jacquard machines, whereby a great reduction in
" the number of cards required for forming a pattern on the cloth
" is effected."

"The arrangement of mechanism under which this invention is
" carried into effect consists of a rectangular frame containing
" the set of needles which act upon the wires to which the harness
" is attached. The needles are arranged so that their ends pass

" through the plates or sides of the frame, and a spring is placed " at either end of them, shoulders or collars being formed on the " needles so that the springs may be kept in position between " these collars or shoulders and the interior sides of the frame. " The frame containing the needles is made capable of sliding to " a small extent horizontally, so that by moving in one direction " or the other the springs on opposite ends of the needles are " alternately brought into a state of compression or inactivity, " that is to say, the springs when in a state of compression act " upon the needles, accordingly when the springs on one end of " the needles are released the opposite ones are compressed, and " the needles are forced in the opposite direction. To utilize this " arrangement of the needles, two jacquard barrels are used, one " being situated on either side of the machine so as to act upon " the adjacent ends of the needles; two sets of cards are employed, " one on each barrel."

"The above arrangement of jacquard machine is chiefly useful " for looms in which cloths with cross borders are woven, in which " case one jacquard barrel is used for the cross border, and the " other for the body or main part of the cloth, thus enabling the " cloth to be woven with two sets of cards, one for the cross " border and the other for the body or ground, under which " arrangement the cards are used over and over again for corresponding pieces or portions of the same piece of cloth instead " of requiring a set of cards with the pattern repeated in it several " times."

[Printed, 10*d*. Drawing.]

A.D. 1865, May 11.—N° 1307.

JAMIESON, WILLIAM.—" Improvements in power looms for " weaving, and in apparatus connected therewith."

The patentee says,—"The first part of my invention relates to " machinery or apparatus for weaving figured fabrics, for which " I obtained Her Majesty's Royal Letters Patent, No. 2357, " A.D. 1857.

"My first improvement consists in the application of a cylinder, " the cylindrical surface of which is formed of sheet metal. This " cylindrical surface is simply perforated with such a number and " arrangement of holes as is required to represent or form the " pattern to be woven. When in use this cylinder is fixed in a

" vibratory frame, and acts upon a system of needles arranged as " in the ordinary jacquard loom.

" My second improvement consists in the application of three, " four, or more cylinders arranged in a frame turning on an axis " supported in bearings on the vibrating frame. They are con- " structed as before described, each being perforated so as to " weave a different pattern of cloth."

" My third improvement consists in a new and simplified " arrangement for actuating the double levers which carry the " 'knife box' and 'rest plate.' Instead of connecting these " double levers together by means of toothed sectors, I apply " a rocking shaft, on which are two levers or arms on opposite " sides of the shaft. A connecting rod from one of these arms " proceeds to the upper double lever carrying the 'knife box,' " and from the other arm proceeds another connecting rod to the " lower double lever carrying the 'rest plate.' The effect of this " arrangement is that when the upper double lever is raised the " lower one is depressed, and vice versa.

" My fourth improvement consists in an improved apparatus " for punching the holes in the cylinders before mentioned. The " cylinder is placed on a fixed axis or bar, on which it is at " liberty both to turn round and move endwise. From this bar " proceeds a tube, the upper end of which forms a die. At the " end of the cylinder is a toothed wheel, the number of teeth in " which corresponds to the number of shoots in the pattern to be " woven. Above the apparatus is a lever carrying a punch, the " point of which acts against the die before mentioned. By this " lever and punch the holes in the cylinder are perforated, the " cylinder being turned round as required, and when one series " of holes is perforated the cylinder is slided endwise by means " of a ratchet, and another series perforated, and so on, no " more holes being perforated than what are required by the " pattern in hand.

" The second part of my invention consists in the application " of apparatus for stopping the motion of the loom on the breaking " of the weft. A weft motion of the usual construction is applied. " One arm of a lever is acted upon by the setting-on rod (with " which it is kept in contact by a spring), it turns upon a fulcrum " at the lower part of the loom, and has another and shorter arm " which is connected to an arm on the stop rod by a wire. On " the breaking of the weft the stop rod is by this appliance held

" tight, and the shuttle is prevented either wholly or partially " from boxing, and the motion of the loom is immediately stopped " by the stop rod coming in contact with the frogs."

[Printed, 10*d*. Drawing.]

A.D. 1865, May 11.—Nº 1312.

ELLIS, Demas, and HILLAS, Matthew.—"This invention " has for its object improvements in apparatus employed in " weaving brocaded and ornamental fabrics, and consists in " certain constructions and arrangements of the apparatus used " for introducing the weft in such fabrics as hereafter explained. " For these purposes a swivel shuttle used in swivel shuttle " brocading is arranged to receive in one part a bobbin barrel, " cylinder, coiler, or similar instrument, on to which, as here- " tofore, the weft to be introduced into the woven fabric is " wound, and in another part of the shuttle another bobbin " barrel, cylinder, or similar instrument is introduced, on to " which the weft passes, and the drag on the weft is thereby " regulated.

[Printed, 6*d*. Drawing.]

A.D. 1865, May 12.—Nº 1316.

SMITH, Thomas, and JAMES, Henry. — "An improved " woven fabric." The patentees say,—"We take waste silk or " silk noils and make them into slivers by any of the ordinary " machines used for preparing cotton or other fibrous material, " and spin or twist the said slivers into threads suitable for warp " and weft, we then weave it into a fabric which in this state is " very rough, but after discharging the colouring matter and dirt " by any of the known processes, we produce a cloth suitable for " towelling and similar purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1865, May 23.—Nº 1413.

HOLT, Isaac, HOLT, William, HOLT, James, and MAUDE, Joseph. — (*Provisional protection only.*) — "Improvements in " dyeing and sizing cotton, silk, woollen, and other yarns."

For dyeing yarns it is proposed to use a bobbin "consisting " entirely of wire or light metal or material." The inventors

" size the yarn in the doubling frame, using dissolved buffalo " hide, the said solution being twisted in the yarn during the " twisting process, by which every thread is sized singly instead " of sizing the warp altogether."

[Printed, 4*d*. No Drawings.]

A.D. 1865, May 24.—N° 1417.

CALVERT, Thomas, and MONTGOMERY, David.—This " invention is designed for the purpose of dispensing with the " weights now employed for giving tension to the warps employed " in looms for weaving." " The improvements consist in the " application and use of a shaft provided with two projecting " rings or recesses, which is supported in bearings beneath the " warp beam, and to which a rocking motion is given by means " of a rod and lever actuated by a cam on the crank shaft; each " of these rings or recesses support on centres a vertical hollow " cylinder containing a helical spring. These springs are confined in the cylinder by means of a circular plate or washer, " which also forms the seating or collar of a thumb screw or " winged nut, which is screwed on to a bolt or rod passing vertically through the centre of the cylinder, spring, and washer. " The opposite end of this bolt from the nut is attached to the " ordinary rope encircling the warp beam, thus as the said nut is " screwed up or down, more or less tension to the warps during " their delivery from the warp beam and the required regulation of " the tension is obtained, and the tension is governed in such a " manner that the warps during the time of shedding shall have " the tension reduced, and when 'closing up' the warp is " tightened by the aforesaid spring, one uniform tension is " thereby obtained throughout the entire piece. This is effected " by the arrangement or adjustment of the rod making the connection between the rocking shaft and the lever in connection " with the cam actuating the same; for instance, if the connecting rod at its point of contact with the cam is brought " nearer to or further from the fulcrum of such lever by means " of a screw more or less throw or vibration will be given to " the warp beam, and thereby, according to its adjustment, " any tension may be obtained during shedding that may be " required."

[Printed, 10*d*. Drawing.]

A.D. 1865, May 25.—N° 1427.

WELSH, David.—(*Letters Patent void for want of Final Specification.*)—This invention relates to arrangements for actuating shifting shuttle boxes of looms.

" In one modification the arrangements are adapted to three " shuttles with the boxes shifting vertically. The boxes are fixed " upon a vertical rod arranged to work in guides upon the lathe " sword, and their weight is partly borne up by a spring, which " acts upon a stud on the vertical rod. To another stud on this " rod there is jointed the upper end of a connecting rod, the " bottom end of which is jointed upon a pin disposed eccen- " trically on a disc arranged to turn on a horizontal axis coin- " cident or nearly coincident with the axis of the lathe. The disc " is made with four sides, and with four pins projecting laterally, " the sides and pins being each one more in number than the " shuttles. A hooked rod is arranged to turn the disc, being made " to reciprocate by a motion from the low shaft, and catching on " one of the pins, excepting when it is held up clear thereof by " the pattern mechanism. The disc is formed with sides, so that " a blade spring or a spring hammer may bear on each as it comes " round, and insure the shuttle box's resting accurately in each " of its positions. The turning of the disc puts the eccentric " pin in four different positions, but as the two middle positions " on opposite sides of the centre are of the same height, the " shuttle box is moved into only three different positions. By " these means only one box at a time will be shifted, but if it " is wished to skip a box the disc is made with a pinion, with " which there gears a wheel of twice its size, and this wheel is " fitted with pins, and is acted on by a second reciprocating " hooked rod, which has its action regulated by the pattern " mechanism.

" Various well known arrangements of pattern mechanism " may be easily adapted to the described details, but it is pre- " ferred to use a small barrel turning on a fixed stud, and " formed with a ratchet wheel to be turned by and with star " wheels to receive an endless pattern chain, consisting of two " plies of leather rivetted together at regular intervals, so that " pattern pins can be inserted between the plies at the parts " between the rivet eyelets. Two levers arranged above the

" barrel are connected by wires to the hooked bars herein-before " described, and they keep the hooks out of action whenever " they are supported by pins in the pattern chain. When a " change of shuttle is to take place a short pattern pin is inserted " or the pin is altogether omitted, in consequence of which the " lever drops a little, and the hooked bar acts on the pinned disc. " The pattern barrel is turned by a catch, which is made to " reciprocate by a cam on the low shaft, and it has connected to " it an arm, which lifts up the lever or levers to allow the barrel " to turn.

" In another modification the wheel in gear with a pinion " having an eccentric pin connected to the shuttle boxes, or in " gear with a rack connected to the shuttle boxes is made " sufficiently large to give all the required shift of the boxes up " or down, without turning as much as half round. Two bars " are jointed to diametrically opposite pins, one on the upper " side, and the other on the lower side of the wheel, and these " bars are guided horizontally; and they are acted on by a " horizontally moving piece, the height of which is regulated by " the pattern mechanism and determines the shift. When the " moving piece, which may be actuated from the low shaft, is " opposite the upper bar, it turns the wheel one way, and when " it is opposite the lower bar it turns it the other way; and in " this way any required shift of the shuttle boxes can be easily " obtained. This last described modification may be applied " to a rotating shuttle box, the pinion being fixed on the shuttle " box."

[Printed, 4*d*. No Drawings.]

A.D. 1865, May 25.—N° 1440.

NEWTON, HENRY EDWARD.—(*A communication from Charles Arthur Radiguet and Jean Adolphe Lecène.*)—" This invention " consists in the employment of electricity to stop the motion of " spinning, weaving, and knitting machines when any breakages " occur during the working, such as the breaking of the weft or " warp threads or any derangement of the headles or other of " the working parts of the machine. To this end an electric " circuit is established between the main body of the machine " and a special apparatus fixed to the machine, but separate " from it by means of some insulating substance, such as ivory,

" glass, gutta percha, caoutchouc. This special apparatus con-
" sists of an arm fixed to the body of the machine, in any suitable
" position, and carrying at its upper end a small piece of wire,
" which works round a pin or stud fixed on the arm, and at the
" other end is bent into the form of a hook, in order to receive
" the thread which keeps it in position. When the thread
" breaks it brings into action an electric bell, and releases the
" hooked piece of wire, which falls against another piece fixed to
" the arm horizontally, and thus completes the circuit. This
" piece is fixed to the bar by means of ivory or other suitable
" insulating substance, and at the other end is hooked to receive
" the metallic thread or wire. In order to detect a hole in the
" fabric small rollers attached to springs are fixed under the
" fabric to the machine. The rollers bear against the fabric,
" and on passing over the slightest defect they will come into
" contact with the electrical apparatus. It will thus be under-
" stood that the fault which occurs in the work is the sole cause
" that produces the electric contact, and this contact causes the
" electric bell to strike automatically, and thus draws the attention
" of the attendant. The completion of the electric circuit will
" also act upon the lever which governs the driving belt, and the
" machine will be stopped automatically at the same moment
" that the defect in the work takes place."

[Printed, 2*s*. Drawings.]

A.D. 1865, May 31.—N° 1499.

NEWTON, WILLIAM EDWARD.—(*A communication from the American Waterproof Cloth Company.*)—" Improvements in the
" manufacture of carpets and other terry and cut pile fabrics."
" The object of the present invention is to produce a fabric having
" a surface of silk, worsted, wool, fur, or other material, either
" looped or tufted, which shall be held firmly and immoveably
" upon the back or ground fabric without the use of a binding
" chain or warp. To this end a ground fabric is made of the
" proper strength and firmness of linen, jute, or other materials,
" upon which is spread a coating of india-rubber or other gums,
" the end of a warp of silk, worsted, or woollen yarns or other
" material is then fastened upon the end of the fabric to be used
" for the back, having spread upon the latter the india-rubber or
" gum as described, a wire or rod or thread of any desired size is
" *then placed* between the back and the warp of yarn which is

" raised above the back, and with a thin blade of iron or steel " the warp is pressed down on the back, so covered with the " rubber or gum close to the rod or wire, and while the blade is " thus pressed down on the warp another rod or wire is inserted " beyond the blade, and the warp is again pressed down firmly " upon the back beyond the wire, and these operations are " repeated until the work is completed to any desired length." " The fabric so prepared is then subjected to the process of " vulcanization in the ordinary manner."

[Printed, 4*d*. No Drawings.]

A.D. 1865, June 2.—N° 1519.

GADD, William, and MOORE, John.—" Improvements in " the manufacture of pile fabrics." By these improvements the patentees "produce two distinct fabrics, which are simply held " together face to face during the formation of rows of pile " thereon." " There are two separate and independent sets of " pile threads, one of which sets of pile threads constantly " operates with one body or back, and the other set with the " other body or back, and the fabrics are held together in the " weaving only, at the parts where fresh fabric is being produced " by the pile of the respective fabrics being formed as loops on " the same set of pile wires, that is to say, a row, or parts of " rows of loops of each fabric is formed on every pile wire. For " this purpose the pile threads and the linen or other body threads " for each fabric are actuated by the healds or harness for the " passage and tying in of their respective weft threads, and the " pile threads of the fabrics are opened into sheets for the passage of pile wires, and then in the closing of them over such " pile wires, each set of pile threads forms a separate row of loops " in the opposite direction, but on the same or corresponding " pile wire. As the loops are tied in and the wires withdrawn, " the two fabrics become separate, and if the wires employed are " plain, terry or uncut pile fabric will be obtained, but by the " use of cutting edges to the wires, each set of loops may be cut " to form cut or velvet pile."

[Printed, 6*d*. Drawing.]

A.D. 1865, June 3.—N° 1524.

FORSTER, Thomas, and ECKERSLEY, James.—(*Provisional protection only.*)—" This invention has for its object to 'take-up'

" or wind the cloth or fabric as it is produced either in a hand or " power loom on to the 'cloth beam' or roller by means of a " positive motion derived from a part of the loom itself." The inventors " make use of a lever or levers or other suitable arrange- " ment, whereby motion is imparted from the 'lathe sword' to a " lever or other equivalent, which carries a paul or catch acting " by friction upon a grooved wheel in such manner as to bite in " the groove, and thereby, when the catch or paul is moved in " one direction, to move the wheel by jamming or wedging itself " in the groove, but to admit of being moved freely in the con- " trary direction, without moving the wheel, which is further " secured from backward movement by means of a similar friction " catch or paul working on a stud attached to the framing of the " loom. Otherwise, instead of forming the friction wheel with a " groove as described, the catch or paul may be formed with a " notch, so that when pushed in the one required direction it may " bind upon and move the wheel as described, and the retaining " catch or paul may be similarly formed. Motion is imparted " from the friction wheel (which may conveniently be fixed upon " the stud of the change wheel of the loom) to the cloth beam or " roller by means of the ordinary wheel motion, or in any other " convenient manner." The inventors " also make use of a " similar arrangement of frictional catches applied to the fly wheels " of looms for the purpose, when required, of instantaneously " arresting their motion, and that of the looms."

[Printed, *4d*. No Drawings.]

A.D. 1865, June 29.—N° 1729.

MERCER, DAVID, MERCER, THOMAS, MERCER, JONATHAN, and MERCER, JOSEPH.—(*Provisional protection only.*)— " This invention consists in dispensing with one or both of the " drying cylinders hitherto used in sizing machines, and sub- " stituting in its or their stead one or more additional blasts of " air from one or more fans driven at a quick speed from some of " the revolving shafts of the machine."

[Printed, *4d*. No Drawings.]

A.D. 1865, June 29.—N° 1730. (* *)

BROOMAN, RICHARD ARCHIBALD. — (*A communication from Stanislas Vigoureux.*)—" Improvements in printing threads em-

" ployed in weaving." "As the warp threads are unwound from " their roller they meet a bed formed of canvas, calico, paper, or " other suitable material; the thread and the bed move together, " and receive a printing from a cylinder or block. At the same " time that the threads receive the impression the dampness of " the color causes the threads to adhere throughout their entire " length to the bed; the thread and bed travel as one towards " the loom to the distance necessary to the crossing of the threads " for weaving. At this point a blade or instrument having a to-" and-fro motion detaches all the threads adhering to the bed " and separates them from it. The threads continue their course " to undergo the operation of weaving, and the bed is directed " over a roller. The adhesion of the threads may be caused by " the natural stickiness of the threads damped by the color, " which ordinarily possesses a sizing element, or by a special " adhesive material applied either to the threads or to the bed. " It is preferable that adhesion should take place throughout the " entire length of the threads, nevertheless, as the bed serves as " a support to the threads they may be caused to adhere only " for part of their length, but across the breadth of the whole of " them."

[Printed, 4*d*. No Drawings.]

A.D. 1865, June 30.—N° 1743.

KEIGHLEY, John.—" This invention relates to means of work-" ing the healds or heddles in such manner as to obtain what is " technically known as a 'split shed,' and the improvements " consists in dispensing with the use of springs for that purpose, " also in simplifying and rendering the apparatus self-acting and " certain in its operations."

The patentees " employ an ordinary pair of levers, which are " hinged at one end to the loom frame, and operated or lifted " and lowered at the other by rods attached to a double crank " fixed on the crank shaft." They also "employ levers hinged " to the frame above and below the healds or heddles; these " levers are connected by bands at one end to the top and bottom " of each heald or heddle respectively, and the other ends of " these levers are connected in pairs by rods, and a top and " a bottom lever being attached to each heald are connected by a " rod. To each of these rods is hinged a double hooked catch, "which, by spring or other force, has a tendency to be in a "determined position until operated upon as and when required. "The catches are selected and acted upon by pin barrel peg lags, "or the needles of a jacquard apparatus, or other pattern surface, "to place any of them in suitable position for contact with either "one or other of the lifting or lowering levers according to "arrangement of the pattern surface. These rods are also provided with hooks or catches, which serve to level the healds or "heddles, and thus prevent the necessity of employing other "apparatus for that purpose. The pattern surface is caused to "act upon the catches, placing them in contact with the levers "at the time when the healds or heddles, and consequently the "warp threads are level, by which means and arrangements some "of the healds are lifted, whilst others are lowered, and thus an "equal and simultaneous opening of the shed or warp threads is "effected upward and downward, thereby producing the 'split "'shed' required."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, July 3.—N° 1758.

HURN, George, and HURN, Daniel.—This invention relates to mats, matting, and brushes, "and consists in the body of the "said mats, matting, and brushes being formed of copper, brass, "steel, or iron wire, coil yarn, flax, hemp, aloe fibre, manilla, "cotton, silk, hair, or other animal and vegetable fibres of the "various descriptions, and interlaced with shreds or strips of "leather or hide inserted vertically or otherwise therein, and "secured in the form of loops or bands in such manner that the "tops or upper portions thereof when clipped or trimmed may "constitute the detergent bed for walking upon, or rubbing the "feet, or employed for scrubbing and other general purposes, the "said combinations admitting of any pattern, texture, or dimensions being employed as may be found necessary."

[Printed, 10*d*. Drawing.]

A.D. 1865, July 4.—N° 1763.

PASSAVANT, Philip.—(*A communication from Friedrich August Pieper.*)—(*Provisional protection only.*)—" Improved linings for "ladies dresses." The inventor says,—"It is at present the "custom to use broad pieces of Orleans or other suitable materials,

" cut in lengths for lining the bottom of ladies' dresses, and " attached to the same in a manner which involves considerable labour, the bottom edge being doubled over, sewn and " hemmed. To prevent the edges of the dresses from wearing a " length of braid of the same circumference as the dress is sewn " on to the bottom edge of the lining. To reduce the labour and " expense consequent upon the arrangement is the object of my " invention. For this purpose I use broad riband made of the " usual material, but having one edge woven with a braid, the " other edge being finished in the ordinary manner. The braided " edge I use to prevent wear of the edge of the dress, and as it " forms a part of the lining I dispense with much of the labour " now requisite, as well as substitute a riband lining for the broad " ones now in use."

[Printed, 4*d*. No Drawings.]

A.D. 1865, July 7.—N° 1803.

BULLOUGH, JAMES.—The patentee says:—" This invention " consists in various improved weft-stopping motions for stopping " the loom when a weft-thread breaks or is absent.

" In one arrangement I place a pin on a stud at the front of the " slay at both sides of the warp, the said pins projecting a short " distance above the race board of the slay. On brackets fixed to " the bottom of the slay there are studs carrying levers, having " inclines at one end and hooks at the other end, and on these " inclines the bottom of the pins rest. On studs fixed to brackets " connected to the breast beam there are other levers communicating at one end by chains or cords or rods to the stopping or " setting-on rod, and at the other end having hooks or projections which can be seized by the hooks of the first-mentioned " levers when required. When the shuttle is being thrown " across the slay, and there is no breakage or absence of weft the " upper part of the pins comes in contact with the weft, and " enables the lower part of the pins, when the slay is going back, " to act upon the inclines of the first-mentioned levers, and raise " their opposite hooked ends, so that no stoppage of the loom " takes place; but if there is a breakage or absence of weft the " pins fall by their own gravity out of the way of the inclines, " and, therefore, one or other of the hooked ends of the levers on " the slay seizes one or other of the hooks or projections of the

" levers on the breast beam, and gives motion to the chains, cords, " or rods connected to the stopping or setting-on rod, and stops " the loom. In some cases one pin and parts connected with it " may be employed at one side only of the warp, but in either " case they have to be worked at every other pick to prevent the " unnecessary stoppage of the loom, and for this purpose I employ " tappets on the tappet shaft for acting by means of levers and " rods on the levers connected to the slay.

" In another arrangement I place on the reed cap a shaft " extending from one end to the other, and fix to the shaft near " each selvedge a bracket carrying in one frame a lever arm or " fork for coming in contact with the weft, another lever or arm " at the front with a hooked end, and at the back another lever " or arm placed between stops for regulating its movements. The " said frame, with its levers or arms, is worked one way by a lever " on the shaft coming in contact with a spring bar fixed to the " framework of the loom, and worked the other way by a spring " and lever, or by a lever and weight. When the slay is moving " back the fork lever or arm feels for the weft, and if there is a " breakage or absence there is no action upon it, and the hooked " lever seizes an arm jointed or held to a lever connected with the " stopping apparatus, and stops the loom; but if there is weft the " fork lever or arm is brought forward by it, and raises the hooked " lever above the arm of the stopping apparatus, and thus prevents " the stoppage of the loom. This apparatus is applied either to " one or both sides of the warp, and worked at every other pick " by rods and levers acted upon by tappets on the tappet shaft of " the loom.

" In both the foregoing arrangements, when a weft thread " breaks or is absent the stopping apparatus is put in action " when the slay is going back, and stops the loom at or about the " back centre immediately after the detection of the breakage or " absence of weft."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1865, July 19.—N° 1876.

KNOWLES, MARK.—(*Provisional protection only.*)—The inventor says,—" This invention refers especially to looms in which the " shuttle is worked by pneumatic power, and consists, firstly, " instead of the ordinary shaft, tappets, and treddles for raising

" or depressing the healds in weaving I place a tappet on the " crank shaft of such construction as to lift only once for every " two revolutions of the same. This tappet I connect to a treddle, " from which I move a heald roller placed under the healds, " instead of the usual lambs and jacks, to which I gear the healds " beneath as they are usually geared above.

" Secondly, in connection with the above, and on the crank " shaft, I work a radial arm or hammer, which for every revolution " of the crank shaft strikes a lever connected with the discharge " rod of the compressed air chamber on the right and left side " alternately, so as to cause the lever to discharge first from the " right and next from the left hand compressed air chamber in " the slay, so as to regulate the alternate throw of the shuttle."

[Printed, 4*d*. No Drawings.]

A.D. 1865, July 21.—N° 1906.

SCHAUB, EDWARD.—(*A communication from John Ulric Billwiller.*)—" An improved sizing material to be employed for sizing " or dressing yarns preparatory to weaving." "The improved " sizing material consists of a combination of water, glue, gum " arabic, Spanish juice or liquorice, blue vitriol, starch, or similar " farinaceous sizing material, powder blue, or washing blue, and " cherry brandy, or other similar liquid known in Germany as " kirschwasser."

[Printed, 4*d*. No Drawings.]

A.D. 1865, July 26.—N° 1937.

BÉLICARD, JULES, the younger.—This invention relates to velvets, plushes, and other pile fabrics, in which two pieces with a pile between them are woven at the same time. The patentee says,—

" First, in any of the frames of the looms used for weaving " two pieces of cloth with a pile between them I employ two " beams or rollers for the main warps instead of one as at present, " and one or more beams or rollers for the pile warps, varying in " number according to the pile fabric required. At one or both " ends of the two main warp beams and the beam or beams " containing the pile warps, there is a pulley grooved or plain, " having fixed to it a rope or band, which passes over a corres- " ponding plain pulley above the framework, and carries a weight

" for the purpose of maintaining the warps at a constant and " uniform tension. The pulleys on the beams wind on the ropes " spirally side by side, until the weights are raised to their highest " positions, and then the loom is stopped and the ropes unlocked " from the pulleys and the weights lowered in order that they " may, when the ropes are again locked, produce exactly the same " tension as before, and so on continuously." "And instead of " using one shuttle for throwing one weft across the two pieces of " cloth alternately, I employ two wefts and two shuttles, one for " each piece, both shuttles passing across at the same time."

" Secondly, my improved arrangements for cutting and separating the pile consist in the employment of two bars of steel " or other substance, which guide the two pieces before they are " cut, and a third bar or slide for guiding the knife, the effect " of which is that the cutting and separating the pieces exactly " in the middle, or with such different heights of pile as may be " required, is greatly facilitated. For sharpening the knife I place " at each side of the fabric a sharpener, each consisting of two " stones or other suitable materials, so that the knife as it moves " to and fro shall, after cutting the pile, pass between the edges " of the stones or sharpeners, and thereby be maintained in a " perfectly sharp condition."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, July 28.—N° 1960.

COCKBURN, William.—(*Provisional protection only.*)—" This " invention has for its object increased simplicity and economy in " weaving ornamental fabrics of or similar to the ' Paisley shawl ' " class, and it is applicable either to single-faced or double-faced " fabrics. In weaving single-faced fabrics according to one " modification, what is known as a 'four thread' harness is " employed; but in all the modifications there is produced what " is known as a twilling of the spotting lines, which has not " hitherto been effected except with a 'split' or a 'full' or 'thread' " harness; only one half of the tie is required as compared with " a 'split' harness. The pattern is put in colors in the usual " way on the French, hexagonal, or equivalent design paper, " and the cards are cut for odd and even bridles, as commonly " practised. Four leaves of heddles or healds are used in combination with the ordinary single-lift jacquard apparatus, for

" which latter, however, other equivalent pattern mechanism " may be substituted. Each of the four warp threads passing " through each harness mail is actuated by a different heddle " leaf, and one of the four leaves is depressed during the working " of each bridle of cards. When working the first 'even' bridle " the first heddle leaf is depressed; with the first 'odd' bridle " the third leaf is depressed; with the second 'even' bridle the " second leaf; with the second 'odd' bridle the fourth leaf; " and so on, repeating the actions in this order."

"In a second modification there are three threads in each " harness mail, and there are three heddle leaves, one of which is " depressed for every 'even' bridle, whilst the other two are " alternated for the 'odd' bridles, or vice versâ. The fabric " produced is the same in appearance as that made by the first " modification, but it has one-fourth less warps, and is inferior " in texture and firmness. Double-faced fabrics are produced in " the same way, but with separate harness and warps for each " face, and with either three or four threads in each mail, and " six or eight heddle leaves to correspond."

[Printed, 4*d*. No Drawings.]

A.D. 1865, July 29.—N° 1961.

CLAYTON, Robert, RAPER, James, and GOULDING, John.—This invention " relates to looms commonly called " 'swivel looms,' in which several small shuttles are employed " to weave figures or patterns on a plain ground."

The invention " consists in the application of any convenient " number of revolving circular shuttle boxes, each containing two " or more compartments on their peripheries, and each compartment of each shuttle box containing a weft of different color or " quality; these revolving circular shuttle boxes are supported on " a cross rod connected to the lay or batten, and they are turned " partially round simultaneously by a rack and pinions or other " equivalents. By this means when the pattern is partly produced " with one color or quality of weft, the circular shuttle boxes are " all turned partly round to bring a shuttle with another color or " quality of weft into operation. In this arrangement each " shuttle forms the segment of a circle, and is driven to and fro " thro' the shed by pinions working in a segmental rack fixed to " the shuttle, or by other equivalent means."

Another part of the invention "consists in an improved mode "of taking up the slack of the weft used in swivel shuttles. The "weft on leaving the bobbin is taken through a slot in the "swivel shuttle, and the bobbin is turned round by a spiral "spring on its stud. By this means the slack weft is rewound "on the bobbin at an uniform tension.

[Printed, 8*d*. Drawing.]

A.D. 1865, August 4.—N° 2022.

GAUKROGER, JOHN, and DODGEON, JOHN.—"Improve- "in machinery or apparatus for sizing, drying, and beaming "yarns of cotton or other fibrous substances."

"This invention relates to the machine commonly called "'slasher,' and the improvements consist, firstly, in the employ- "ment of one or more winged, ribbed, grooved, or perforated "rollers for conducting the yarns through the sizing trough "instead of the plain surfaced rollers now used for that purpose, "by which the size is better enabled to penetrate the yarns. "Also in the use of three or more plain rollers for the same "purpose, whereby the yarns are longer immersed in the size "than heretofore.

"Secondly, the improvements consist in applying an eccentric "or crank on the nipping roller, which is in contact with the "measuring rollers with a rod attached thereto, and to a lever "and catch for actuating the ordinary ratchet wheel, which is "fixed on the traverse screw, or the screw employed to operate "the strap guide for traversing the strap on the conical or taper "drums."

"Thirdly, in applying a friction pulley with a lever and an "adjustable weight to the aforesaid nipping roller for producing "the necessary tension on the yarn during the winding on to "the beam, instead of weighting the back yarn beams, whereby "stretching of the yarn is avoided."

[Printed, 10*d*. Drawing.]

A.D. 1865, August 9.—N° 2061.

SHAW, THOMAS RAMSDEN.—(*Provisional protection only.*)— These "improvements are designed for the purpose of diminishing "the force of the concussion of the shuttle against the picker as "employed in the ordinary power loom during the operation of "weaving.

"The improvements consist in the novel employment and use " of a flat piece or strap of metal applied to the shuttle box, and " so formed or constructed that its opposite ends embrace the " picker, the outside end thereof forming a stop or barrier for " the lower or propelling portion or 'leg' of the picker, the " other end being so formed that the picker shall be impelled " against it, and thereby cause the said strip of metal to slide " in the opposite direction when the shuttle is leaving the box, " the back end against which the 'leg' of the picker bears shall " slide or move in the shuttle box, whilst its centre or portion " between the ends slides in a recess or box secured to the back " of the shuttle box. Within this recess a spring is so arranged " as to exert an increased or diminished pressure (by means of a " set screw) against the aforesaid metallic strap or bar of metal, " so as to regulate the amount of movement or 'slip' required " by the sliding check or stop."

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 10.—N° 2073.

INGHAM, JOHN, INGHAM, HENRY, and BROADLEY, JAMES.—"This invention relates, firstly, to the shedding motion " or means of working the healds or heddles in looms for " weaving; and the improvement consists in having each leaf " of healds or heddles attached at each end to a slide rod or " frame capable of sliding up and down in or on brackets fixed " to the loom ends. These rods or frames are connected by " other rods to levers which are operated by tappets or eccentrics " fixed on the tappet shaft, and which tappets or eccentrics are " so arranged or disposed and set on the said shaft as to actuate " the rods and levers, and consequently move the healds or " heddles up or down at the proper time as required. By " means of this improvement all bands, jacks, treddles, bowls, " rods, and the top rail or cross frame of the loom are dispensed " with.

"Secondly, the invention relates to the taking-up motion or " means of winding the woven fabric on to the beam, and the " improvement consists in operating the taking-up roller by " means of an eccentric fixed on the tappet shaft operating a rod " attached thereto, and to a lever with the usual catches for " acting on the ratchet wheel in gear with the taking-up roller;

" also in having the cloth beam resting upon and driven by the " taking-up roller, and in having it made of iron or other suitable " heavy material of sufficient weight, so as to dispense with the " levers and weights now applied for that purpose; this beam " is placed in slots attached to the loom ends so as to be capable " of rising as the cloth is wound thereon."

"Thirdly, the invention relates to the batten or lay, and the " improvements consist in dispensing with the usual sword " arms, and mounting the said batten upon horizontal slides, or " upon jointed arms hinged on a vertical spindle, so as to obtain " horizontal motion, and thereby avoid the curvilinear motion of " the batten now produced by sword arms, and also to maintain " the reed in the same position at every part of the stroke;" or the patentees "mount the batten upon the ordinary crank arms, " which are so formed as to be capable of sliding in brackets " fixed to the breast beam or the loom ends, or on the top ends " of arms capable of oscillating.

"Fourthly, the invention relates to the knocking-off motion, " and the improvement consists in having the 'frog' to ride on a " pivot attached to the loom end, and nearly balanced thereby, " requiring but little power to move it, and it is so arranged that " the notch will rise slightly when acted upon by the catch of the " stop rod."

"Fifthly, the invention relates to the picking motion, and the " improvement consists in covering the shur spindle or picker " spindle with glass, to diminish friction and lubrication thereof.

"Sixthly, the invention relates to the letting-off motion, and " the improvement consists in the application of a worm on the " friction pulley shaft to gear in a worm wheel fixed on a screw " spindle passing through the weight on the lever, which is so " arranged as to cause the weight to slide on the lever, and " thereby reduce the pressure on the friction pulley in proportion " as the diameter of the warp beam becomes less by the taking " off or removal of the warp therefrom."

[Printed, 10*d*. Drawing.]

A.D. 1865, August 11.—N° 2083.

BROOMAN, Richard Archibald.—(*A communication from Stanilas Vigoureux.*)—(*Provisional protection only.*)—" Improve- " ments in treating and printing threads employed in weaving.

Letters Patent were granted on the 29th June, A.D. 1865, No. 1730, to R. A. Brooman, for an invention communicated by Stanislas Vigoureux, for "improvements in printing threads "employed in weaving," which invention is stated to have "applied solely to printing warp threads. Now the present "invention consists in causing threads to adhere by gum or "otherwise for the whole or part of their length upon a bed "before, during, or after being printed, so that the printed threads "may be stripped from the bed and wound off without becoming "entangled or intermixed preparatory to their being employed in "weaving."

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 12.—N° 2091.

BULLOUGH, William.—"Certain improvements in looms for "weaving."

This invention consists, firstly, "in certain improved modes of "constructing and applying the break for stopping the loom "when the shuttle does not arrive at its destination."

Secondly, in improvements upon the taking-up motion, for "which Letters Patent were granted to the present patentee on "the thirty-first day of August one thousand eight hundred and "sixty-four, Number 2135.

"And, lastly, in an improved mode of constructing the tappets "for working the healds, whereby the shed is opened and closed, "so as to produce the requisite vibration of the yarn."

The break is applied to the rim of the fly wheel; "this break "is coated with india-rubber or other suitable substance; to this "break a catch is jointed, and to this catch is fixed a pin working "in an inclined groove in a lever jointed to the frame of the "loom; to this lever is also jointed a connecting rod which con-"nects the said lever to a spring frog. When the shuttle is "absent, or fails to box, the stop rod finger acts on the spring "frog, which causes the catch to fall into a notch on the fly "wheel, thereby pulling the break against the rim of the fly "wheel and stopping the loom. By this means the strain is "betwixt the notch on the fly wheel and the rim thereof, and not "on the stop-rod finger as heretofore."

"When the loom is in motion the vibration of the yarn is pro-"duced by the giving way of the springs supporting or acting on

" the temples. When the cloth has passed the temples it passes " under a roller or bar which is fixed between two slotted levers; " the said slotted levers vibrate on the axle of the cloth beam, " and at each end of the levers is a weight to counteract the tension of the cloth. If the length of the yarn given off is less " than that taken up the rod is raised and stops the taking up of " the cloth. The yarn is given off by a positive letting-off motion " derived either from the yarn, beam, or otherwise."

" The vibration of the yarn is in all cases caused by the opening or forming of the shed by the tappet." The "tappet is " made with a dwell, which comes in operation when the lay is " beating up the weft, so that the vibration ceases during the time " that the reed and lay are putting in the pick of weft; this dwell " may be twenty degrees, or any other portion of the circumference " of the tappet to suit the fabric that is being woven. After the " reed has beat up the weft, and is going back, the tappet is " made to complete the remaining part of the shed before the " shuttle commences to pass through the shed for the next pick, " and this is repeated at every pick, whether the healds be worked " by a single or a double tappet."

[Printed, 10*d.* Drawing.]

A.D. 1865, August 16.—N° 2115.

GADD, WILLIAM, and MOORE, JOHN.—(*Provisional protection only*).—The inventors say,—" Our improvements consist in " arranging looms for weaving so that they may produce two or " more separate and distinct fabrics at the same time. For this " purpose looms arranged according to our invention are provided " with two or more sets of warps, one above the other, which " may be operated by the same or by separate sets of healds so " so as to form two or more separate and distinct 'sheds' at the " same time for the passage of the shuttles. We form the batten " with two or more shuttle races, and with two or more reeds one " above the other, according to the number of warps employed " (or it may be with one broad reed), and in place of their being " only one back and front bar, as in the present arrangement of " looms, according to our improvements looms are arranged with " separate back and front bars one over the other for each set of " warp threads employed. There will be separate weft forks for " *each* fabric being woven, which may be arranged to operate

" upon the same or separate stopping apparatus. The swells in " in each shuttle box may either have separate stop motions or be " connected to the same stop motion. The shuttles are thrown " simultaneously by the same or by separate pickers operated by " the same picking means. Loqms arranged according to our " improvements may have one or more warps and work rollers."

[Printed, 4*d.* No Drawings.]

A.D. 1865, August 16.—N° 2117. (* *)

CHALMERS, Flora McDougall.—(*A communication from the late David Chalmers.*)—(*Provisional protection not allowed.*)—" Im" provements in the manufacture of textile fabrics and in the ma" chinery or apparatus connected therewith."

This invention relates, firstly, to certain improvements in the mode of winding cops for weaving, one feature of which improvements is that when the cop is in the shuttle the weft is drawn off from the outside instead of from the inside as usually practised. The machinery employed consists of a hollow piece of metal on which a projection is formed for the purpose of guiding the thread over a short traverse at the commencement of building the cop, so that the whole of the thread may draw off without breaking. Within the hollow piece of metal there is a weight through which the cop spindle passes, and as the cop is being formed on the spindle the weight is by it gradually raised, so that the distance between the thread and projection becomes increased, thus permitting a longer traverse of the thread as the cop increases in length. Instead of thus regulating the traverse a wedge may be passed through the guide on the working shaft, which acts in connection with a lever and collar fastened on the spindle, and as the thick part of the wedge passes into the guide the latter moves through a greater distance, thus increasing the traverse.

Another arrangemement consists in fixing to the guide a spring, beneath which a wedge moves, actuated by a lever which is guided in its motion by a collar on the spindle, and as the wedge is drawn out the guide is enabled to move through a greater distance as the cop is being built.

Another part of the invention relates to " broad looms," and consists in introducing centre cranks or eccentrics, centre swivels, and centre framings, so as to give stiffness to the whole machine. The loom is driven by wheel and pinion instead of by a " single

" motion." "At the end of the connecting rods of the crank or " eccentric rod a slot is formed, so as to allow the loom to run on " whilst the lay stands still, thus giving the shuttle time to run " through."

An improvement in the weaving of goods in broad looms consists " in weaving them with thick strips at intervals, so as to " increase their strength, the heddles being arranged to shed the " the warp for this purpose."

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 17.—N° 2122.

AKEROYD, ABRAHAM, and LISTER, JONATHAN.—(*Provisional protection only*.)—" Improvements in shuttles for weaving " purposes." The object of this invention " is to weave piece " goods more quickly than can be done by the present systems, " and to attain this result without increasing the speed of the " loom and causing extra depreciations of the same." This is effected " by passing through the centre part of an ordinary shuttle " transversely a pin or centre which acts as a fulcrum for two " or four bobbins as may be required. Spindles of usual con- " struction for such number of bobbins are connected by means " of pins and ordinary joints to the axis or fulcrum. Eyes are " also pierced on either side of the shuttle in the usual position " to admit the threads. By this arrangement of shuttle two or " four threads of various colours may be placed in the shuttle at " one time, and thus in a fancy piece, for instance, either two or " four threads may be cast at one pick instead of each colour " being cast at separate picks as is usual."

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 23.—N° 2171. (* *).

MONCKTON, EDWARD HENRY CRADOCK.—(*Provisional protection only*.)—" The treatment of plants containing silica in " order to obtain fibres and other products therefrom." The inventor says :—" I take the thrashed stalks or straw of wheat, " barley, oats, and rye, which last I prefer, and also grasses, " from which I first, when necessary, cut off the heads or " ears ; I then subject the straw to pressure between rollers " and then place the straw in a solution of caustic alkali, " either applying heat with pressure or steam under pressure, or

" otherwise, or else I employ the alkaline solution cold; I renew " the alkaline liquors as they become entirely or partially saturated, and I accelerate the removal of the silica by subjecting " the straw to agitation and compression by employing press " boards raised and lowered alternately and successively by " cranks kept revolving, or by any other suitable means. The " straw during these processes is intermediately subjected to " rolling, in order to separate the fibres and to detach the silica or " the siliceous portions. The fibre so prepared may then be subjected to the usual and common processes applicable to hemp, " flax, tow, and other fibres, and is fit for fine or coarse purposes, " according to the care with which it has been prepared, and it " is also suitable for mixing with and forming combined fabrics " with other fibres and wools." The refuse is utilized in various ways.

[Printed, 4d No Drawings.]

A.D. 1865, August 25.—N° 2181.

CLAYTON, Lemuel.—(*Provisional protection only.*)—The inventor says,—" My invention consists of applying an article " known as 'mosaic manufacture' to ornamenting carpets, rugs, " mats, velvets, and other piled fabrics; also to table covers, reps, " terrys, borders, and other curtain and furnishing fabrics. I " propose, firstly, to make, cut, or stamp to any given configuration, the object to form the design or part of a design, and " then cement or sew it on to the face of the woven fabric, either " to form a design of itself or to complete a portion of a design " previously woven.

" 2nd, in carpets, rugs, and other piled fabrics, I propose to " weave a space or bare ground (by leaving down the warp or " warps when necessary), of the same conformation as the object " to be placed on, thus making an even surface with the fill'd-in " and woven parts.

" 3rd, I propose to apply to curtains, table covers, borders, and " other furnishing fabrics the same method of ornamentation, " except that in most of these fabrics being flat on the face, the " mosaic object would stand off in relief from the woven surface. " These stamp'd or cut objects can be distributed over the surface " of the woven fabric of any given form, colors, or variety."

[Printed, 4d. No Drawings.]

A.D. 1865, August 28.—Nº 2204.

BONNEVILLE, Henri Adrien.—(*A communication from Fraisse-Brossard, fils jeunes.*)—" The object of this invention is to " permit of keeping in stock a sufficient quantity of raw velvet, " that is to say, velvet without any other colour than the natural " tint of the silk, so as to supply any amount of velvet of any " required colour in a brief delay, not longer than that required " for dyeing it." "To obtain the desired results it has been " necessary, firstly, to make two pieces without cutting them so " as to dye them before being cut when the pile is held at both " ends by the backs of the two pieces."

" Secondly, to construct the cutting machine." The piece of velvet to be cut is wound upon a roller situated at the lower part of the machine, it passes upwards and is cut into two pieces by a circular revolving knife, each piece when cut passes on to a separate roller one to the right and the other to the left.

" Thirdly, to construct a regulator to regulate the height of the " pile." The regulator is formed of two plates, one of which is provided with a steel spring, and the other with a toothed part, " when one of these plates is turned on the other this spring " diminishes or increases in diameter." " On the diameter of " this spring depends the arrival of the pile chain, and consequently its greater or less height on the fabric."

[Printed, 8*d*. Drawing.]

A.D. 1865, August 31.—Nº 2250. (* *)

WARD, John.—(*Provisional protection only.*)—" Improvements " in the means of fixing or attaching the bobbins of winding and " other machines on to their spindles, which improvements are " also applicable to other similar or analogous purposes, and " to the detaching of railway carriages from trains whilst in " motion."

"The spindle of a winding machine is usually made with a " screw thread at one end, and when the bobbin is placed on the " spindle a nut is passed on to this screw and screwed up to the " head of the bobbin, so as to hold it firmly on the spindle. My " invention is designed to dispense with this screw and nut for " such and similar purposes. In carrying out my invention I " leave the spindle smooth and of the same diameter throughout " *its length*, and I fit thereon a loose socket having a flange at

" one end. This socket is provided with a pin attached to a " spring lever (somewhat like a flute key), so arranged that the " pin projects inside the socket, except when withdrawn by " pressure on the lever. A hole is drilled into the side of the " spindle in such a position that upon placing the socket on the " latter, and pushing it up to the bobbin as soon as the flange of " the socket comes against the head of the bobbin, the pin drops " into the hole in the spindle and thus locks the socket thereon. " In order to allow of any slight variation in the length of the " bobbins I provide the face of the flange with a friction spring, " which bears against the head of the bobbin, or with a spring-" driving pin which projects into a corresponding hole in the head " of the bobbin."

"By a very slight modification this arrangement of a spindle " or bolt (with a hole in the side) fitting into a socket with a " pin and spring lever, as above described, would be equally " applicable to other analogous purposes where a bobbin, beam, or " roller is required to be fixed on a spindle or shaft."

"The invention is mentioned as being "applicable to the fixing " of beams or rollers on their shafts or spindles in warp and other " similar machines."

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 31.—N° 2251.

LESLIE, James.—(*Provisional protection only.*)—" Improve-" ments in cutting the terry or loops of 'fustians,' cords, and " similar fabrics, which are also applicable to cutting velvets."

"The improvements consist in the use and application of a " guide or 'distender' to each 'race' of loops, which is to keep " the loops firmly distended, that whilst in such condition they " may be cut by revolving circular knives. Each distender " consists of two thin blades of metal hinged together at the " point or end which enters and advances up the 'terry,' and the " plates are kept asunder so as to distend the 'terry' laterally by " means of a spring placed between them, which renders them " self-adjusting to any width of 'race' of loops. The guides or " 'distenders' being inserted into the 'races' are then secured " to a rod to connect them together, and as the fabric is wound " on a roller behind them they open and distend the 'terry,' " which whilst in a state of tension is cut by a corresponding " series of cutters revolving in a direction contrary to the passage

" of the fabric arranged above and acting upon the terry between
" the distended blades."

[Printed, 4d. No Drawings.]

A.D. 1865, September 7.—N° 2295.

SMITH, John.—(*Provisional protection only.*)—This invention relates to machinery for shedding or working the healds in looms for weaving. The inventor makes use " of a series of segmental
" tappet plates which are made to vibrate by a crank or other
" equivalent; on each side of the tappet plates are mounted
" bell-cranked levers, one arm of each of which forms an elevator
" or a depressor according to the position on which it is held by
" means of levers acted upon by a chain of lugs with pegs or
" other equivalents. By this arrangement any convenient number
" of healds may be operated upon to form the shed, and the same
" tappet plates may be used for weaving all the patterns capable
" of being woven by the healds employed."

[Printed, 4d. No Drawings.]

A.D. 1865, September 16.—N° 2368. (* *)

HOYT, Jehiel Keeler. — (*A communication from Charles Reynolds.*)—" Improvements in bobbins or spools used in spinning
" and winding yarns and threads."

This invention relates to means of causing bobbins to adhere to their spindles or skewers when placed thereon, but still be capable of being easily withdrawn therefrom.

The improvements consist in forming in the lower end of the bobbin a recess into which is fitted an elastic packing, composed of a ring or a number of rings of india-rubber or other elastic substance. This packing bears tightly against the interior surface of the recess, and has a central perforation of such size as to fit tightly on the spindle. The packing may be composed of short sections of tubing, or of washers, or of one washer formed from sheets of the elastic material. When the recess is conical the diameter thereof must be greatest at its upper part, and in this case the packing must be so compressed into the recess as to cause it to form a " dovetail joint " with the interior of the recess, this arrangement preventing the packing from being pulled out of the recess when the bobbin is lifted from the spindle. The recess may, however, be made of cylindrical form, and the packing secured therein by a washer of wood or other material fixed below such packing, which the patentee mentions as a preferable arrangement. The invention is applicable to the bobbins of shuttles.

[Printed, 8*d.* Drawing.]

A.D. 1865, September 20.—N° 2395.

EDMONDSON, JOSEPH.—" Improvements in looms for weav-" ing." " The first part of this invention relates to ' loose reed ' " looms, and the object is to avoid in the process of weaving, " the breakages frequently resulting either to the shuttle or to " the warp, by the fixed back of the shuttle box preventing the " shuttle from receding with the loose reed when any obstruction " to the proper transit of the shuttle takes place. This object is " accomplished by hinging the box back on a horizontal axis.

" The second part of this invention has reference to ' con-" ' tinuous ' looms, or such as without stopping, supply their " shuttles with fresh bobbins or cops as they are required." " The " object of this improvement is to avoid breakages arising from " the loom's failing in its attempt to drive a fresh cop case into " the shuttle. This improvement consists in making the bottom " of the shuttle box of the same or nearly the same width as the " shuttle, so that when the ' carriers ' and lathe recede from each " other, the cop case, which has failed to enter the shuttle, will " have nothing to rest upon, and will therefore fall down out of " the way of collision, and also in having the back of the shuttle " box made loose, and (not necessarily, but by preference) hinged " on a horizontal axis. When any obstruction to the entrance of " the cop case into the shuttle causes the pressure on the back of " the shuttle box to be too great for the safety of the shuttle or " the cop case, the back of the shuttle box recedes and actuates " a finger or tongue, which strikes the belt handle and stops the " loom.

"The third part of this invention also relates to continuous " looms, and consists in using a series of shuttle boxes or " shuttle stalls, each containing a shuttle properly filled with " weft, instead of the skeleton shuttle, and the series of cop " cases." " Suitable ' guides ' or ' holders ' are attached to the " lathe, into which the boxes or stalls containing shuttles are " driven in succession as required."

[Printed, 2*s.* Drawings.]

A.D. 1865, September 30.—Nº 2519.

LONGBOTTOM, William.—" Improvements in weft-winding " machines, both for winding on bobbins and cops, also for a " shuttle to hold the cop when weaving."

" This invention consists in driving the spindles of weft-winding " machines by means of bevil friction, and also in making that " part of the spindle which receives the bevil wheel hollow, " whereby the motion is communicated thereto, and the top part " of the spindle is made smaller with a square, oblong, or other " shaped hole; by these means the top part of the spindle can " be driven by the lower part, and still allow the spindle to slide " up and down free and easy. The top part of the aforesaid " spindle carries a weight or knob, which can be made heavier or " lighter to suit different kinds of yarn; the said weight serves " also to disengage the spindle when full, by coming into contact " with an incline on the top of a lever, employed to throw the " spindle out of motion by pushing off the catch on the bottom " of a vertical lever, thus relieving a weighted horizontal lever " employed for raising the bottom part of the spindle with the " friction wheel from another larger wheel situated on a horizontal " shaft working under the centre of the vertical spindles of the " machine.

" A further improvement consists in bringing the back and " front of winding machines so near together that one traverse " shaft does for both sides, one side going down whilst the other " side is going up, thereby balancing each other."

" A further improvement consists of an expansion motion to " regulate the yarn and keep it at an equal degree of tension in " passing from the bobbin or swift on to the weft spindle." This is effected " by means of a slide with an eye or projecting part for " the yarn to pass under, so that when the traverse motion is " passing from the large part of the weft spindle down to the " small part thereof, the aforesaid slide descends and takes up " the slack yarn by means of a spring or weight, and as the " traverse rises to wind on to the part larger in diameter the slide " is drawn up, thereby preventing the yarn from running on to " the weft-spindle slack."

For holding the cop in the shuttle when weaving, the patentee takes "an ordinary shuttle, and in the place where the tongue " thereof is inserted," he places "a spring clip, made of either

" brass, iron, steel, or other suitable metal of a horse shoe form, " except that the ends or arms are made nearly parallel to each " other, and the inside thereof made to spring inwards, and so " accomodate themselves to various diameters, and thus retain " the cop until the material is all drawn away. On the circular " end of the aforesaid clip, and in the centre thereof, is inserted " a square end, which works on a spring, similar to the spring " shuttle now in use, so that when the clip is lifted up out of the " box part of the shuttle, the clip will easily open to receive the " cop, and when shut down into the box part of the shuttle " the spring of the clips will become stronger, and thus retain the " cop fast in its place."

[Printed, 1*s*. Drawing.]

A.D. 1865, October 2.—N° 2523. (* *)

ABEL, Charles Denton.—(*A communication from John Peter Caminade.*)—(*Provisional protection only.*)—" Improvements in the " mode of treating the roots of the lucerne plant, for the pur- " pose of manufacturing paper, pasteboard, fabrics, and ropes " therefrom."

The roots are first crushed by being passed between stone rollers, and then subjected to a retting process, either by soaking the crushed roots in retting pools until the process of maceration is accomplished, and all extraneous matters removed from the fibres, or by placing the roots in boiling water (by preference heated by steam), " whereby also the fibres are disintegrated, and " converted into filaments similar to those of hemp or flax." " As the fibres obtained by the above described process are of " considerable length, they may with advantage be spun into " threads, and then manufactured into textile fabrics or ropes."

[Printed, 4*d*. No Drawings.]

A.D. 1865, October 4.—N° 2543.

WADSWORTH, James, HALL, Thomas, and BONSER, Samuel.—(*Provisional protection only.*)—These improvements relate to the taking-up motions of looms. The inventors say,— " In one arrangement we place a rod above or below the cloth " beam between the last lap of the cloth and the cloth on the " beam, and when desired keep the rod parallel by fixing at each " end a pinion gearing into a stationary rack. We fit one end of

“ the rod to a boss at the top of a two-armed lever, one arm
“ having a stud placed in a curved slot in a bracket fixed to one
“ of the end frames or front rail of the loom, and the other
“ carrying a swing lever, having a regulating stud placed in the
“ slots of a double-slotted lever working on a stud fixed to the
“ framework, the said double-slotted lever having an arm worked
“ by a tail or spindle on one of the sword arms. We also place
“ the regulating stud in the slot of the lever which works a rim
“ wheel, or the ordinary ratchet wheel of taking-up motions. As
“ the slay sword moves to-and-fro it gives motion by the tail or
“ spindle to the double-slotted lever, and also to the lever which
“ works the taking-up wheel, and as the cloth increases in
“ diameter the regulating stud drops in the slots of the double-slotted
“ lever at a variable diminishing speed, in consequence of
“ the stud on the first-mentioned arm moving in the slotted curve
“ fixed to the front rail or frame; or instead of the double-slotted
“ lever we attach a slot to one of the sword arms for performing
“ the same task. Or instead of fixing a stud on the first-mentioned
“ arm, and placing it in a stationary curved slot, we make
“ the arm curved and pass it through an ordinary slot or guide;
“ or we make the curved slot in the arm itself, and pass the slot
“ over a stationary stud, and in those rim wheel or ratchet-wheel
“ levers which are worked by an eccentric on the tappet shaft in
“ connection with another lever, operated upon by the increasing
“ diameter of the cloth, we make the run or ratchet-wheel levers
“ curved instead of straight, for the purpose of giving a variable
“ diminishing speed to the taking-up motion. In another arrangement
“ we place a bar or roller of wood or metal in contact with
“ the back of the cloth on the cloth beam, and cause the ends of
“ the bar or roller to be in contact with one end of a horizontal
“ lever, having its other end working in a horizontally curved
“ slot, formed in a vertical slide to which the swing lever is
“ attached, so that as the cloth increases in diameter the horizontally
“ curved slot shall be depressed, and with it the slide, and
“ also the swing lever, and thus give a variable diminishing
“ motion to the taking-up wheel and cloth beam. When the
“ loom stops from the breakage or absence of weft, it is frequently
“ advisable to prevent the cloth from being taken up until a few
“ picks have been thrown across, and for this purpose we place in
“ guides at the front of one of the sword arms a horizontal slide,
“ having a number of ratchet teeth at both sides. At the front

" of the sword arm there is a ratchet or catch for acting on the " teeth on one side of the slide, and the teeth on the other side " are provided with a spring catch. It is intended that one end " of this slide shall keep up the holding catch or the holding " clip until a few picks have been made, and be released by the " catch on the sword arm acting on as many teeth of the horizontal slide as there are picks to be made before the taking-up " commences."

[Printed, 4*d.* No Drawings.]

A.D. 1865, October 7.—N° 2588. (* *)

KIRBY, JOSEPH.—(*Provisional protection only.*)—" Improve" ments in 'pirn' winding machines for winding flax, cotton, and " other fibrous materials."

The inventor says:—" My invention consists in dispensing " with the spindle ordinarily used for driving the 'pirn.' For " this purpose I employ a wharve turning loose upon a stud and " placed above the pirn. This stud is attached to a bracket " capable of moving upward and downward upon suitable guides. " Upon the wharve I form projections which take into grooves in " the pirn and thereby drive it, the pirn being also guided by the " above-mentioned stud; the other end passes into the 'cup' in " the usual manner. In order to arrest the motion of the pirn " when the winding on the yarn is completed I use a weighted " lever, one end of which is situate beneath the bracket carrying " the wharve, but is held down by means of a catch. When the " wharve has been lifted by the winding on of the yarn this lever " is liberated and lifts the wharve and its projections clear of the " grooves of the pirn."

[Printed, 4*d.* No Drawings.]

A.D. 1865, October 9.—N° 2596.

TODD, PETER, and HOLDING, JOSEPH.—" Certain improve" ments in looms for weaving." " The invention relates to that " part of the loom called the 'slay board' or 'race' along which " the shuttle travels, and more particularly to that part of the " 'slay board' which is usually recessed for the reception of the " 'weft fork,' levers, or prongs."

" The improvements consist in the application and use of a " series of vertical plates (like a grid) in the said space usually

" left open. The upper edges of these vertical plates are made " level and even with the surface of the 'slay board,' and are " employed for the purpose of partially filling the said space, and " thereby preventing the weft from falling into it; and also by " making the intervals of space less the shuttle is supported by " the edges of the plates when passing over the space."

[Printed, 6*d*. Drawing.]

A.D. 1865, October 17.—N° 2672.

LORD, Edward. — (*Provisional protection only.*) — " Certain " improvements in looms for weaving."

This " invention is applicable to the shedding motion, and it " consists in working the healds by means of a series of tappets " or tappet plates, which give motion to a series of treadles; " these treadles are connected at one end to the lower portion of " the healds, and at the other, by means of links, to the top jacks " to which the upper parts of the healds are suspended; by this " means each heald is raised or lowered to form the different " portions of the shed in a positive manner, and the counter- " weights for raising the healds usually required in weaving " certain fabrics are dispensed with."

[Printed, 4*d*. No Drawings.]

A.D. 1865, October 17.—N° 2681.

NEWTON, Henry Edward. — (*A communication from Isaac Emerson Palmer.*) — " Improvements in machinery for weaving " the covering of blind cord and other tubular fabrics." " This " invention consists principally in the employment, for carrying " the warp thread or yarn in a loom or machine for weaving " blind or shade cord or other tubular fabrics, of one or more " gravitating shuttles, kept by their own weight at the bottom " of a hollow rotating cylinder, which has its axis in a hori- " zontal position, and which carries a number of bobbins on " which are the warp yarns. It also consists in the employ- " ment in combination with such rotating cylinder (having its " axis horizontally arranged and with the gravitating shuttle " or shuttles) of a series of traversing warp guides or carriers " having a movement parallel with the axis of the cylinder for " the purpose of producing the crossing of the warp yarns, by

" which (as they revolve with the rotating cylinder) they are " made to receive the weft between them. It also consists in the " employment for operating the aforesaid warp guides or carriers " of a stationary cylinder, arranged at one end and concentric " with the rotating cylinder, and having on its periphery two " crossing grooves for the reception of switch pieces attached to " the traversing warp guides or carriers. It also consists in the " attachment to such a gravitating shuttle of a weft conductor, " which is made so to conduct the weft into the warp and so to " act upon the warp as to serve the purpose of a reed, viz^{t}., to " press the weft up closely at the filling point. And it further " consists in the application of a series of elastic warp conductors " in combination with the bobbins on the rotating cylinder and " with the traversing warp guides or carriers, for the purpose " of regulating and equalizing the tension of the warp yarns."

[Printed, 10*d.* Drawing.]

A.D. 1865, October 18.—N° 2691.

CATCHPOLE, Thomas. — (*Provisional protection only.*) — " Improvements in reeds for weaving cocoanut, jute, and other " fibres." The inventor stamps or cuts from sheet iron or steel, or other suitable metal, narrow strips with a hole at each end. The reeds are then constructed by passing two rods of iron, steel, brass, or wood through the holes, and then placing on the rods washers "proportioned in thickness to the coarseness or fineness " of the weaving to be executed with them. Having placed the " washers on, another strip of metal is placed on the rods, and " so on."

[Printed, 4*d.* Woodcut.]

A.D. 1865, October 30.—N° 2792.

BRAQUENIÉ, Alexander.—The patentee says, "This invention has for its object the production of a new kind of double-" faced tissue in tapestry or carpets with similar or different " patterns on each face, as desired; and my invention consists in " placing between each pattern card employed in the manufacture " of single-faced carpets another card to form the design for the " other face. The tissues are made in the ordinary loom or " machine. I first raise the threads of wool of the top design

" by the ordinary card, and then pass a round or fluted spindle, " or, when desired, a thread of wool or other material, beneath " the said threads of wool. I then slacken the machine, and " cause the additional card to leave the bottom design underneath " the threads of the top design by raising all the other threads " of wool. The warp of linen thread is raised up at the same " time, in order to leave a sufficient opening to effect the next " movement. The spindle or thread is then passed between " the bottom threads and all the other raised threads, and for " rendering the separation of the bottom threads from the others " more perfect or effective I use a wooden blade. I now slacken " the speed of the machine, and by the traverse or motion of the " chain, warp, and shuttle make the canvas (or ground of the " carpet), the shuttle being thrown three times. The tissue is " thus complete on the two sides, as in carpets with one face, " and when the bottom design is to be formed as a pile fabric " the round spindle is armed at its extremity with a knife, which " on its return cuts the loop or terry so as to form a pile."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 1.—N° 2810.

SELLARS, John. — This "invention consists in the conversion " of wheat, starch, wheat flour, farina, sago flour, or any other " amylaceous substance into a gum, size, dress stiffening or " finish by means of submitting these or similar substances to " the action of any mineral or vegetable acids, or a mixture of " any of these acids, in any proportion when mixed with water, " and submitting such mixture of amylaceous substance with " water and acid to the action of heat by introducing an open jet " of steam into the mixture, or by heating with an open fire, or " by means of a double-cased vessel or suitable pan, until such " time as the amylaceous matter is converted into a gummy " substance, or size, or dress, and then neutralizing the acid by " any of the alkalies of commerce or other substances that will " take it up," "and when neutralized the adhesive matter so " produced is fitted according to the amylaceous substance or " mixture of amylaceous substances used, and the quantity of " acid employed, and the length of time the same are submitted " to heat for their conversion into gum or size, and also the " alkali or materials used for the neutralizing of the acid after

" their conversion into gum to the sizing, finishing, or stiffening " of yarns or textile fabrics."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 1.—N° 2811.

JACKSON, Adrien, CLOUGH, James, and ASHLEY, Charles.—(*Provisional protection only.*)—The inventors say, " This invention relates to the description of looms called " jacquard looms for weaving plaids, checks, and other figured " fabrics."

" The first part of our invention relates to a double-acting " shedding motion. On a shaft placed at the back of the loom " we fix a double tappet, acting on friction bowls working in " the short ends of two L levers, the longer ends of the L levers " being connected with the two griffs or knives, motion being " given to the shaft by gearing from the crank shaft. On the " top of the loom we place three sets of levers working on shafts " fixed to the loom frame. The top set of levers reach across the " width of the loom, one end of the levers having a slot in " which the top of the hooks are placed, and their other ends " being connected by cords or wires to jacks for pulling down " healds for forming the shed. The middle set of levers are con- " nected to the top of the healds at one end, and the other ends " of the levers to the bottom set of levers; one end of the " bottom set of levers being connected to the top of the healds " at the other end. The other ends of the levers have slots in " which the other set of hooks are placed, the hooks being moved " to or from the griffs or knives by needles and cards in the " usual manner. When motion is given to the shaft the double " tappet gives a to-and-fro motion to the short ends of the L " levers, and an alternate up-and-down motion to the other ends " of the L levers and griffs or knives for forming the shed.

" The second part of our invention relates to a slide picking " motion in under or slot picking looms. On each end of the " back tappet shaft we place a cam in contact with a plate or disc " fixed to one end of a short shaft working in suitable bearings " in each end frame of the loom, and to the plate or discs or " shafts we fix tappets which are acted upon by bowls on the fly " wheels. At the other ends of the short shafts are levers con- " nected by short rods to the picking sticks, each rod having two

" universal joints for dispensing with straps. When the loom is " put in motion the cams acting on the plates or discs give the " short shafts a to-and-fro motion, and move the tappets alter- " nately from under their respective bowls, and thus give alternate " motion to the pickers. Or instead of the back tappet shaft we " place a spur wheel on each end of the crank shaft, and another " larger spur wheel on a stud on each end frame of the loom, " and cut an internal cam in the boss of the large wheel, and " place the end of the short shaft in the groove of the cam, and " thus give a to-and-fro or sliding motion to the short shafts and " tappets, as before described, by which means we dispense with " the back tappet shaft and plates or discs."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 3.—Nº 2836.

TOLHAUSEN, FREDERICK.—(*A communication from Julius Schottenfels.*)—" This invention relates to certain improvements " in the shuttle motion of looms for narrow goods, such as " ribbons, suspenders, or braces, and so forth, in which the requisite motion is imparted to the shuttles generally by a reciprocating toothed rack and a series of cog wheels arranged on " opposite sides of the gap, and in looms with two or more " shuttles one above the other. A vertically adjustable rack and " pinion for each shuttle, or other complicated mechanisms are " employed to impart to the shuttles the desired motion, and the " loom is rendered expensive and liable to get out of order. " These difficulties are obviated by this present invention, which " consists in the employment or use of a reciprocating carrier in " combination with the toothed rack and cog wheels or other " equivalent mechanism, and with a series of shuttles mounted " one above the other in a vertically adjustable frame, and provided with guide grooves to receive suitable dogs which project " from the carrier in such a manner that by raising or lowering " the shuttle frame each of the shuttles in the tier can be thrown " in gear with one and the same carrier, and the desired motion " is imparted to it, without requiring teeth in the shuttle itself, " or without requiring a separate carrier and separate racks and " pinions for each shuttle, and with a mechanism which is simple, " durable, and not liable to get out of order. The mechanism " last mentioned consists chiefly in arranging the shuttles in "a frame, which is vertically adjustable on dove-tailed strips secured to the breast of the batten, and the several shuttles are arranged in different shuttle races. These races are separated from each other by partitions, which are held in place by vertical bars. Each of the shuttles is provided on its rear surface with one or more vertical grooves, and if the shuttles are driven clear to either end of the shuttle races the groove or grooves in one shuttle register with those in the other shuttles and also with grooves in the bottom rail of the frame. The carrier herein-before mentioned travels in a suitable guideway in the batten, and which is provided with cogs in its upper edge to gear into cog wheels that have their bearings on pins secured in the batten, and to which a revolving motion is imparted first in one and then in the opposite direction by the toothed rack herein-before mentioned. This rack slides in the top edge of the batten, and is operated by cords extending from its ends in opposite directions and secured to pickers. The carrier aforesaid is provided on its inner side with one or more studs or dogs which fit into the aforesaid grooves of the shuttles and frame."

[Printed, 8*d*. Drawing.]

A.D. 1865, November 3.—N° 2843.

HEALD, Arthur.—(*Provisional protection only.*)—"Improvements in looms for weaving." The inventor says,—"My invention consists, first, in an improved method of treading or working the healds in looms direct from the crank shaft in the following manner:—I place on the crank shaft a boss about one foot in length in which there is a groove cut somewhat in the form of a figure 8, which occupies about six inches in length of the centre of the boss. Two-thirds or thereabouts of a revolution of the crank shaft would carry a pin which works in this groove a distance of six inches on the boss, and during the remaining third of the revolution the pin will remain stationary in the groove, which will give the necessary dwell to the healds whilst the shuttle is passing through the warp. The next revolution will carry the pin back again and cause it to work on the other side; by this means I give a continuous right and left motion to the pin as the crank shaft revolves. I insert this pin in a collar about six inches in length, bored to "fit the boss and to work easily upon it; this collar has a projection about nine inches in length upon the lower side, in which is placed a brass collar, which is cast upon a boss smaller than the above, in which are cut one or more threads or worms of the necessary pitch that will enable the brass collar, by moving six inches backwards and forwards on the boss to give sufficient turn to a small shaft, which passes through the centre of the boss, to open and close the healds, for the passage of the shuttle through the warp."

"Secondly, my invention consists in an improved method of picking or throwing the shuttle." The shuttle is thrown by india-rubber cords attached to the picker. "In order to throw the shuttle across the warp the picker and cords are stretched out as far as is necessary to give the required speed of the shuttle, and retained in that position by means of a catch at the end of the shuttle box until the pick has to be made."

"Thirdly, my invention consists in an improved method of working the weft motion direct from the crank shaft. I place on the crank shaft a tappet, one half of which is excentric and the other bored in the centre, the side of the excentric nearest to the crank shaft being level with that part of the tappet which is not excentric. In each half of the tappet their is a groove which extends round the whole of the circumference of the tappet. These grooves intersect each other where the two parts of the tappet are level. To the end of the greyhound tail or lever which works the hammer head, which catches the weft fork when the weft breaks, I attach a loose pin somewhat similar to that which I employ to work in the groove in the treading motion. This pin works in these grooves, and consequently during each alternate revolution of the crank shaft being in the excentric part of the tappet it will give motion to the greyhound tail and so move the hammer head backwards and forwards.

"My invention consists, lastly, in means of opening the air valves in what are known as pneumatic looms." "At present the levers for opening the valves are actuated by a V-stud which is attached to the side and near the edge of a toothed wheel of about eight inches in diameter at each side of the loom."

"Now one of my means for opening and closing the valves is as follows:—I form a double groove intersecting itself on the

" edge of the fly wheel used in looms, or on the boss, or on any " boss made for the purpose and placed upon the crank shaft of " the loom, to cause alternate action on the lever, depending upon " the position of the lever in the groove or worm."

Another method is described as follows:—" I place a worm or " tappet or grooved boss attached to the wheel, on which I place " the V-stud on a stud attached to the loom side either in a " vertical or lateral position, which ever may seem desirable. I " place a large wheel on the crank shaft and a small one attached " to the ground boss and wheel, so as to give a great degree of " velocity to the latter." " I provide as many grooves in the " worm or boss or wheel as will keep the end of the lever, which " is worked in a similar manner to the former method, out of the " way of the V-stud, except for every alternate revolution of the " crank shaft."

" Another of my methods of opening the valves is as follows:— " I place on the crank shaft a worm or screw, somewhat similar " to that which I employ as a treading motion. To this worm I " attach an iron rod either direct or by means of an intermediate " lever which extends beyond each end of the loom side. To " each end of this rod I attach a finger. This worm gives a " reciprocating motion to the rod, keeping the finger at each end " end of the rod out of the way of the lever connected with each " valve, except when the loom requires to pick, when owing to " the backward movement of the slay the valve lever will come " in contact with the finger on the rod, and so cause the valve " to open and shut almost instantaneously."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 8.—N° 2883.

EASTWOOD, James.—" Improvements in machinery or apparatus employed for sizing yarns."

" This invention relates to an improved means of applying " steam to the yarn, before its admittance to the size and boiling " box or pan; an improved means of heating and boiling the " size in such size boiling box or pan, and also a means of regu- " lating the pressure of the top roller of the size box for squeezing " out of the surplus size from the yarn." At the bottom of the boiling box or pan is placed a chest or box, " which is supplied " with steam for the purpose of heating and boiling the size (the " said chest or box is provided with a pipe and taps for the

" discharge of condensed steam)." The top of the steam chest or box is made convex or arched. " Above the said chest or box " and parallel thereto, is a shaft extending across the size boiling " box or pan, which said shaft has an oscillating or to and fro " motion imparted thereto, and to which is affixed a number of " paddles or scrapers for the purpose of stirring or agitating the " size in the box or pan, and prevent its sticking or burning to " the steam chest or box." "The top surface of the steam chest " or box may be corrugated or grooved longitudinally for the " purpose of receiving perforated steam pipes, so that if desirable " steam may be admitted to the size box or pan for the purpose " of reducing the consistency of the size. A second steam chest " or box is employed, through which the yarn is caused to pass " before its admittance to the size, for the purpose of saturating " and opening the fibres of such yarn the better to prepare it for " receiving the size." Spring levers or screws are applied " to the " top rollers in the size box or pan, so as to adjust the pressure of " the said rollers on the yarn for the purpose of squeezing out the " surplus size."

[Printed, 10*d*. Drawing.]

A.D. 1865, November 16.—Nº 2947.

CATON, MATTHEW, and HOLDEN, HENRY.—" Improvements " in power looms for weaving."

The first part of this invention relates to the shedding motion. The patentees "place upon the ordinary tappet shaft of the loom " a cam having an excentric groove in the face. In this groove " works a pin or friction roller fixed near the centre of a lever, " one end of the latter working on a fulcrum attached to the " frame, and the other end being connected to a strap. This strap " passes under a pulley, and its ends, which extend upwards, are " attached one to each of the heald frames, which frames are " suspended from above in the usual manner."

The second part of the invention relates to the picker. The " improved picker is made in two parts working on an ordinary " fly spindle, and geared and driven in the usual manner. The " top or permanent part of the picker is made of metal, wood, " buffalo hide, or other suitable material, and the bottom or " front part is made of leather fastened to the former by pegs, " wedges, or other similar contrivances, so that upon the picker

" becoming worn by the constant striking against the shuttle " tip, the front or working portion of the picker can be readily " replaced by a new piece of leather without renewing the other " parts of the picker."

The third part of the invention relates to the weft fork, " and " consists in making such forks with the grains or prongs " separate and rivetted together in the frame (instead of making " them all in one piece as hitherto done), so that in the event of " one of the grains or prongs becoming broken a new one can be " readily inserted and rivetted as before."

[Printed, 8*d*. Drawing.]

A.D. 1865, November 17.—N° 2961.

BROOMAN, Richard Archibald.—(*A communication from Pierre Honoré Maillard.*)—" Improvements in the manufacture of " shawls."

" The essential feature of the invention is the manufacture of the " side fringes of figured shawls in the body of the fabric." The patentee claims,—

" First, the manufacture of shawls having fringes produced on " their four sides during the operation of weaving and figuring.

" Second, the mode, substantially as herein-before described, of " manufacturing figured shawls with four fringes, such mode " being essentially based on the employment of a warp thread " which replaces towards the edges of the shawl the cotton " binding thread in the border called mignonnette, and forms " transversely by its prolongation the side fringes."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 17.—N° 2966.

WHITEHEAD, James Heywood. — (*Provisional protection only.*)—This invention relates to the manufacture of endless cloths used in paper-making machinery. The inventor says,— " According to my invention I employ cloths of cotton, linen, or " vegetable fibre woven in such manner that the warp is buried, " the weft being as much as possible kept in the surface of the " fabric, and I make the joints for rendering each cloth endless " by bringing together its ends from which the warp threads " project, the weft threads having been removed for a short " distance. I draw the said warp threads into the opposite " ends of the fabric by means of a needle or otherwise," " and

" as cloths of vegetable fibre cannot be felted, this process is " omitted, and the warps are secured by turning them back and " drawing the ends again into the fabric in a direction towards " the joint."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 23.—N° 3010.

GREENHALGH, NATHANIEL, and MALLISON, JAMES.— The patentees say,—" Our invention relates to the sizing and " dressing of yarns in such machines as are called 'slashers,' " 'tape legs,' or other similar machines, wherein the yarns pass " through a vessel or trough containing the sizing material, and " between a series of rollers and over a steam or drying cylinder, " two pairs of rollers usually being employed to squeeze or divest " the yarn of the superfluous size, the first pair being made of " wood, and one of the second being composed of copper or " suitable metal having a smooth and truly even surface. This " copper or metallic roller has hitherto been in contact with the " hot size, and has thereby become so heated that whenever " the machine and progress of the yarn have been stopped, the " size has been thereby hardened or 'baked' on the yarn at " that part in contact with the heated metallic roller, and thus " great loss and inconvenience have been occasioned. Our improvements consist in obviating this loss and inconvenience " by preventing this roller (or other metallic rollers similarly " employed in sizing and dressing yarns) from becoming heated " to any injurious extent, so that the machine may be stopped " without the usual consequent damage of the yarn. The said " roller may be kept cool either by partitioning it off from the " hot size by a partition or curved 'shield or protection,' and so " preventing the direct contact of the size therewith, which is " about the simplest means; or a continuous current of cold " water, cold air, or other similar cooling fluid may be passed " through the roller or continuously applied to the surface " thereof."

[Printed, 8*d*. Drawing.]

A.D. 1865, November 25.—N° 3028.

HOTHERSALL, RICHARD THOMAS, COOK, SAMUEL, and HACKING, WILLIAM HENRY.—(*Provisional protection only.*)—

"This invention consists in applying to heald-knitting machines "of any construction a self-acting registery and a tokening or "marking motions in combination in order to supersede hand "labor, the motions being so constructed as to be capable of "change in order to mark or token the healds according to the "counts required." The inventors "employ a fly-wheel or cam, "the periphery of one half of it being greater than that of the "other half, fixed on the change wheel shaft. By means of this "irregularity in the circumference a lever is actuated every half "revolution of the fly-wheel. This lever is connected to another "lever, which is capable of being lengthened or shortened according to the change wheel used, and this second lever is connected "with a bell-crank lever. The bell-crank lever has a needle-"holder and needle fitted at one extremity, and through the eye "of the needle the tokening hand or thread is passed, which at "every simi-revolution of the fly-wheel, by means of the train of "levers, is passed alternately to each side of the heald being then "knit, and thus tokens the heald the same as is now done by "hand. The registering motion is for the purpose of indicating "the number of tokens manufactured, and consists of a ratchet "wheel, each tooth of which is numbered. This is actuated by "pawls on the levers in connection with the cam or fly-wheel, "and is moved round one tooth for every token knit, thereby "indicating the number of tokens made, and obviating the "necessity and loss of time occasioned by the knitter having to "count the work done."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 29.—N° 3066.

BOUSFIELD, George Tomlinson.—(*A communication from Charles Bradley.*)—"Improvements in machinery employed when "weaving hair, and in preparing and treating hair for weaving."

"These improvements consist, first, in an arrangement of "machinery whereby the crude hair is opened, separated, and "cleaned by removing the dirt and foreign matter therefrom."

"Secondly, the invention consists in certain improved combinations of machinery for drawing and separating or assorting "the hairs into bunches of uniform length, adapted to weaving "different widths of goods."

"Thirdly, the invention consists in coating the free or switch "end of the hairs, which is smaller than the butts or growing

" ends, with a solution of glue or other suitable material or " compound, to increase the size of this end of the hair, so that " in weaving the switch ends shall take up the warp and produce " the same closeness of texture and appearance as the butt end, " providing either are placed all uniformly on one side of the " warp.

" Fourthly, the invention consists in annointing or dressing one " end of the prepared hair before weaving with melted tallow or " other fatty or oleaginous material or compound, the object being " to protect the glue or other suitable compound used when the " hair is damped before being woven.

" And in relation to the improvements in the combination and " arrangement of mechanism and device adapted to weaving " horsehair weft, the invention consists," " 1st, in confining and " compressing the bunch of prepared hair or weft at one end in a " reciprocating yoke, by means of a presser or clamp that exerts " a force upward in the yoke toward the instrument which selects " the single hair from the bunch, so that the portion of the bunch " so compressed under the instrument shall be maintained at a " uniform density as the bunch diminishes by drawing hairs one " by one continuously therefrom.

" 2nd, in enveloping the bunch of prepared hair, after it is " moistened as usual, in a sheath of wollen cloth or other suitable " material, to keep the hair in the bunch moist during the time " required to feed or serve it to the loom.

" 3rd, in preserving the end that is to be compressed and " operated on by the selecting or serving instrument from being " moistened with the other portion of the bunch, as usual, by " enveloping that end of the bunch in a waterproof cot or tube of " india-rubber or otherwise.

" 4th, in holding the bunch of hair on the serving machine in a " curved or a curved inclined position, so that when single hairs " are withdrawn from the bunch those remaining will not be " disturbed and become entangled.

" 5th, in constructing, combining, and arranging a notched " pointed instrument or lance and a yielding surface or pad to " operate in such a manner that both shall be plunged into the " compressed portion of the bunch and gather from thence a " number of ends, out of or from among which one end shall be " caught in the notch of the lance and held therein by the co- " operative efforts of the yielding pad, and thus caught, shall be

" lifted out from and deflected, and held to one side of the " remaining compressed end preparatory to being seized by the " nipper or other instrument which places the same on the warp.

" 6th, in so combining and arranging the serving instrument " and the nipper or its substitute and the bunch of hair that the " end that is selected and deflected from the bunch by the serving " mechanism may be held across the track or path of the nipper, " which is thus enabled to seize the weft between the selecting " instrument and the bunch to draw it into the warp.

" 7th, in controlling the operation of the selecting or serving " mechanism by means of a delicate finger or detector that has a " sweep or movement across the position of the selected weft after " each operation of the selecting instrument between the same " and the bunch of weft when the weft is not present, or is " arrested by the weft when it is present."

" 8th," " in the employment in connection with the selecting " mechanism of a second detent or stop, which arrests the selecting " mechanism in a position to be out of the way of the nipper, and " is brought into action with each backward movement of the lay " in case the weft fails to be selected, and continues in action " during any determined number of picks, and is then automatically " cally released.

" 9th, the invention consists in closing the shed upon the weft " immediately after drawing it between the warps, and in advance " of the closing of the shed by the regular operation of the " heddles, in order to bind the hair temporarily between the warps " to prevent it from springing, curving, or otherwise departing " from the straight condition in which it is drawn into the shed.

" 10th, in the means employed for operating the nipper to place " the weft in the shed, consisting of a segmental rack and a " pinion operated by two crank studs on the main shaft to revolve " a drum in opposite directions alternately, from which, by means " of a strap winding and unwinding therefrom, motion is communicated " municated to the nipper.

11th, " in so combining and arranging a multiplying lever with " suitable connections between the whip roll and the pawl of " the ratchet that exerts the movement to let off the warps that " the depression of the whip roll produced by the tension of the " warps is multiplied and transmitted to the pawl, and with the " inclination which is given to the connection between the lever's " end and the pawl by the retreating movement of the latter

" preparatory to engaging with the ratchet, the pawl is lifted more " or less from the ratchet, and thereby made to engage with and " move the ratchet to the extent of one tooth or more, according " to the degree of tension of the warps."

12th, "in providing a means by which the action of the several " heddles employed shall be stopped before the shed is changed " whenever the hair or other material used as weft is not drawn " between the warps, where such weft was designed to have been " placed, while at the same time the beat of the lay is not interrupted; and also in providing a means by which the said " heddles shall automatically resume their action that instant that " such weft is properly inserted."

13th, "in providing a means by which, in case the supply of " weft fails as the shed is opened to receive it, the same shed is " wholly or in part closed and again reopened, and so continues " to do until the weft is supplied thereto, after which the change " is made which open the succeeding shed.

" 14th, this part of the invention relates to the combination and " arrangement of mechanism for clipping or trimming broken and " protruding ends of weft from hair cloth."

[Printed, 7*s.* 2*d.* Drawings.]

A.D. 1865, December 2.—N° 3091.

SCOTT, Edward.—(*A communication from Wilhelm Gminder.*)— " Certain improvements in looms weaving."

The patentee says,—" My invention relates to further improvements upon Letters Patent granted to Wilhelm Gminder, " dated November 7th, A.D. 1863, No. 2766, for a novel and " peculiar arrangement of tappets employed to actuate the " 'treadles' which elevate and depress the 'heald shafts,' and " which was more particularly designed to effect a different " disposition of the same 'tappets' when a difference in the " weaving is required, so as to render the same 'tappets' available for many descriptions of weaving.

" The present improvements consist in a novel arrangement of " the 'tappets,' and in the mechanism connected therewith for " actuating the same, whereby I am enabled to weave repeated " patterns with the same 'tie-up' of the shafts, and also with " equal facility a continuous pattern, in which 3, 4, 5, 6, 7, 8, 9, " 10, 11, or 12 shafts are used, may be woven. The peculiar

" arrangement of mechanism for effecting this may be thus " described:—Upon one end of the crank shaft a bevil wheel is " secured which gears into another bevil wheel keyed upon and " giving motion to a shaft from which is suspended a lever; the " lower end of this lever is steadied and moves in a slot formed " in a bracket secured to the framing, and at about half the " length of this suspended lever a stud is fixed for the purpose " of supporting two wheels, the one large and the other a small " pinion; these wheels are formed so as to revolve together, and " receive their motion from a wheel on the shaft driven by the " aforesaid mitre wheels. The said pinion gears into a 'mangle " rack' in the form of a segment of a circle which is secured to " a disc or flange keyed upon the tappet shaft; this pinion, " when revolving gives, through the medium of the 'mangle " rack,' a reciprocating or oscillatory motion to the 'tappets,' " which tappets actuate a bowl secured to one arm of a 'bell-" crank' lever, the extremities or opposite ends of which are " attached by an arrangement of connecting cords and levers to " the 'heald shafts,' which thereby receive the necessary rise and " fall for 'shedding.' This arrangement of tappets acts upon " the 'treadles' or bell cranks both in their backward and " forward movement, which in effect is similar to the 'tread' of " the hand loom weaver.

" As an example of the improvements suppose a loom re-" quiring an eight-shaft pattern with the improved reciprocating " tappet motion attached, eight 'tappets' alone will be needed, " whereas in the old circular tappet motion 14 tappets would be " required, namely, 1, 2, 3, 4, 5, 6, 7, 8, 7, 6, 5, 4, 3, 2, and " when a different pattern is required to be woven with the same " tappets that have previously been used, it will only be necessary " to rearrange and dispose them so as to act upon the healds " according to the pattern desired."

[Printed, 10*d*. Drawing.]

A.D. 1865, December 2.—N° 3094.

EDMONSON, RICHARD.—These "improvements relate to the " construction of pickers, and consist in forming them of metal " with a receptacle in each picker for buffalo hide or other " suitable material, which is to act against the tip of the shuttle, " the metal part of the picker being so constructed that it can

" be readily taken in pieces to remove the piece or pieces of " buffalo hide or other suitable material when worn out, and to " replace it with fresh material. Those parts of the pickers " which slide upon the spindle are also arranged so as to be " readily replaced when worn out by using bushes formed of " metal or other material, which are secured by expanding one " or both ends of the tube or bush when in its place."

[Printed, 8*d*. Drawing.]

A.D. 1865, December 4.—N° 3103.

TEMPLETON, John Stewart.—" This invention relates to " the weaving by power of pile fabrics, such as 'patent Axmin- " ster' carpeting, and which are woven with 'fur' thread, such " as is made according to the Specification of Letters Patent for " England, granted to James Templeton and William Quiglay, " dated 25th July, 1839, (No. 8169,) or with 'fur,' 'fringe,' " 'chenille, or pile' threads of other kinds. Hitherto in weaving " such fabrics the 'fur' or like material has been combed or " brushed up by hand, but by the present invention this operation " is performed automatically."

" In one modification the comb or brush, composed of pointed " wires projecting downwards from a back, which is by preference " of a zig-zag or undulated form in plan, and which is of the " full width of the fabric, has its ends attached to arms which " pass through open spaces in the lathe at each end of the reed, " and which are centred on brackets fixed to the lathe rail. " Springs are applied to lift the comb, and it is depressed at the " proper periods by the action of a cam on a lever connected to " the arms carrying it. When the comb is so drepressed the " forward movement of the lathe causes it to act on the fur " material in the desired manner.

" The details of the appliance are obviously susceptible of " considerable modification. Thus, if it is wished to give the " comb teeth a more rapid motion than that of the lathe, the " comb may be made of a cylindrical form, with the teeth or " wires by preference arranged spirally on it, and it may be " arranged to rotate in the ends of its carrying arms when moved " forward by the lathe.

" In another modification the comb may have an oscillatory " or partially rotating movement given it, the cam action for

“ depressing and raising it being arranged to lift it on its “ reaching its most forward position, so as not to act on the “ fur material during its return movement. The comb or brush “ may also be carried otherwise than by the lathe. This automatic combing movement may be applied either when the ‘fur’ “ material is used as a weft or when it is used as a warp.”

[Printed, 8*d*. Drawing.]

A.D. 1865, December 5.—N° 3116. (* *)

ASHWORTH, John Jackson.—“Improvements in winding “ machinery, which improvements are partly applicable to machinery for spinning and doubling.”

This invention is particularly applicable to the pin-winding frame. “Owing to the conical form of the pin bobbins the speed “ at which the threads are wound upon such bobbins is constantly varying, whereby a considerable amount of breakage is “ caused.”

“Now these improvements consist in causing the spindles on “ which the bobbins are mounted to vary their speed according “ as the thread is being wound upon the larger or smaller diameter of the bobbing, so that yarn may be always taken up “ at an uniform speed, and consequently the strain upon the “ threads being always equal less breakage occurs, and I am “ enabled to wind more yarn and to make a harder bobbin. I “ effect this by mounting the spindles vertically in wharves, which “ are driven by friction wheels situated upon an horizontal driving “ shaft, so that the peripheries of the friction wheels on the “ driving shaft are at right angles to and in frictional contact “ with the under surface of the wharves which drive the spindles, “ and I cause the driving shaft to travel backwards and forwards “ by means of a disc working at the end of an horizontal shaft at “ right angles to the driving shaft, which disc has a cam groove “ nearly approximating to the shape of a heart cut on its outer “ surface, in which groove a small bowl revolving upon a stud “ attached to a loose collar upon the driving shaft works, so “ that as such cam shaft revolves the groove impinges against “ the stud upon the driving shaft, and causes such shaft to move “ backwards and forwards at a suitable varying speed to suit the “ cone of the bobbin (which in the bobbins used is nearly in the “ proportion of 2½ to 1, that is, the horizontal shaft travels back-

" wards and forwards at a speed when the yarn is being put on " the smaller diameter 2½ times faster than when it is being put " on the larger diameter of the pin bobbin), and thus the friction " wheels upon the driving shaft alter their position with regard to " being nearer to and farther from the centres of the spindle " wharves, thereby producing the necessary variation in the speed " of the said wharves, according as the thread is being wound " upon the larger or smaller diameter of the bobbins; the thread " guide is also connected with the driving shaft, so as to rise and " fall with a varying velocity to suit the requisite shape of the " bobbins. When it is necessary to stop a wharve so as to " take out a bobbin in case of the yarn breaking small levers are " provided, working upon fixed studs or pins, which raise the " wharves off the friction wheels by means of pressure applied by " the hand on the other end of the levers."

It is stated to be advisable to arrange the spindles of the machine so that those on one side of the frame may be working at their slowest speed whilst those at the other side are at their quickest speed, the "power" being thus more equally distributed and the machine kept steadier. It is also mentioned that by means of this invention linen and cotton yarns may be wound upon the same frame.

[Printed, 10*d*. Drawing.]

A.D. 1865, December 6.—N° 3145.

CLABBURN, WILLIAM HOUGHTON.—(*Provisional protection only.*)—The inventor says, " This invention has for its object " improvements in the manufacture of shawls and similar " ornamental weavings.

" Formerly in weaving shawls in which weft of many different " colors was employed, it was usual to produce the pattern " entirely by means of this colored weft, and the warp was fine, " usually of a dull color, and was kept as much as possible off " the face. More recently the warp has been used to form part of " the pattern by being brought to the surface more in one place " than in another, according as the pattern required. In some " cases also such shawls have been made double-faced, that is to " say, to appear of the same pattern on the one face as on the " other, by so arranging the pattern on each face throughout that " as far as outline is concerned it repeats itself, but with change

" of color; the colored weft then which is in front in one of " these parts of the pattern is behind in the other part, and vice " versa, and so as far as the weft is concerned a similar appearance " was thus given to the two sides of the fabric. This, however, " does not apply to the parts of the pattern obtained by bringing " the warp to the surface, which parts of the pattern have hereto- " fore been disposed solely as the taste of the designer dictated, " and without rule. Two warps, either of the same or of different " colors, have consequently been employed heretofore in pro- " ducing such double-faced shawls or weavings, one warp to be " brought up to produce pattern on the one face, and the other " to produce pattern on the other face.

" Now according to this invention I dispense with one of these " warps, and I arrange the pattern in such manner that wherever " in one-half of the pattern the warp comes to the surface to " appear in the design, in the other half of the pattern (or the " repeat thereof with altered colors as already mentioned) the " warp is buried, and the weft is on the surface to produce the " design. By this arrangement it will be seen that one jacquard " engine and set of cards is required in place of two, as is required " when the double face is produced with two pattern warps.

" I use in addition to the warp of the pattern a binding warp, " in order more securely to tie in the wefts, this binding warp as " heretofore is kept as much as possible off the face. Where it " is desired that in addition to figured fabric produced as above " described, there should be also at other parts of the piece a " plain or ground fabric, I find it convenient to cut off the bind- " ing warps, leaving the pattern warp of the figured fabric to " form the warp of the plain fabric."

[Printed, *4d.* No Drawings.]

A.D. 1865, December 7.—N° 3152.

WOOLLATT, Joseph.—" Improvements in machinery or appa- " ratus in looms for weaving."

" In these improvements a number of wire bars having holes, " perforations, or slots therein for any required number of threads " to be passed through, are placed under a reed and batten; " these bars have a to-and-fro movement given them, according " to the pattern required by each bar being attached to a lever at " each end of the loom; such levers are actuated by cards upon

" a cylinder at each end of the loom, being so moved by preference in lieu of employing a spring or weights, though a " spring or weights may be used. The warp threads intended to " form part of the fabric to be made pass through the holes, " perforations, or slots in the bars, and also through or between " a number of bars which form a reed, slay, or batten moved " upwards and downwards vertically by means of spindle bars, " levers, and cams, or equivalent contrivances. Each piece of " fabric when produced passes upwards through or between a " pair of rollers, each pair of rollers being moved by a series of " worms on a shaft capable of being governed in its movements " by a jacquard. The fabric when it has passed through the " above rollers passes also through another pair of rollers, from " which it falls into a receptacle at each or either end of the loom. " The pickers which propel the shuttles carrying the weft to-and-fro form part of or are secured to a bar or bars to which a " to-and-fro movement is imparted by a series of rocking levers " worked by a cam or cams."

[Printed, 2*s.* 10*d.* Drawings.]

A.D. 1865, December 8.—N° 3156. (* *)

MAGGS, Oliver, and SMITH, George Hedgecombe.—" A " new or improved method of preparing esparto, alpha, or Mogador grasses, or other similar vegetable substances, for spinning, " weaving, and for substitution for hair and for other fibres now " in use."

" We boil esparto, alpha, Mogador grass, or some other vegetable substance in water, and when still in a wet state we press " it between rollers and then hackle it in a wet state; we thus " obtain a fibre which can be spun and used in a manner similar " to hemp, and applicable to many purposes."

[Printed, 4*d.* No Drawings.]

A.D. 1865, December 14.—N° 3236.

BROOMAN, Richard Archibald.—(*A communication from Stanislas Vigoureux.*)—(*Provisional protection only.*)—" A new " method of and apparatus for regulating the tension of threads " in weaving and other operations." " On examining the warp " threads in looms at the position where given off by the warp " beam they are submitted to the crossing for the formation of

" the fabric numerous irregularities of tension are observed. " These are attributable to several causes, and the object of this " invention is to remedy them. The threads in the position " referred to are drawn horizontally in opposite directions, in one " direction by the warp beam at the tangential point, and in the " other by the batten at the point of formation of the fabric. " These two drawings, consequences of the vertical strains exerted " by the heddles for crossing of the threads, produce a tension " on each thread to which its elasticity acts as an equilibrium; " but this resistance which each separate thread offers is much " diminished by the fact of the great distance of the points of " support. It is this distance which this invention reduces by " interposing a new and movable point of support for the threads " between the two points before referred to." " The new point " of support is movable and free to be displaced longitudinally " in the sense of the threads, so that its position varies according " to the variations of resistance of the threads, and thereby " regulates the resistance automatically."

[Printed, 6*d*. Drawing.]

A.D. 1865, December 16.—N° 3257.

JOHNSTON, Francis, and ASTLEY, William. — " The " object of this invention is to utilize and prepare for re-use " certain portions of healds now considered waste."

" A heald considered worn and unserviceable is divided by " cutting the eyes of such heald, thus separating the lower loops " or part of the heald from the upper part. A cylinder or roller " is then passed longitudinally through the loops of such part of " the heald, which loops are held securely on the said roller by " means of a hook or pin. The cylinder or roller is supported " on framework and provided with suitable bearings. The " braiding is cut (at the terminating or finishing end of the " knitting of such heald) and the end passed through the neck " of the shaft of the roller (which, as well as the shaft, is made " hollow for that purpose) and attached to a weighted creel. " The worsted forming the loops, and through which is passed " the cylinder or roller, is also cut and attached to a bobbin " having rotary motion applied thereto by any suitable means, " around which said bobbin the worsted is wound, the braiding " being drawn in a direction at or about right angles to the

" worsted by means of the weighted creel, to which it is attached " and wound thereon, thus unravelling or unknitting the whole.

" The worsted on its transit from the cylinder or roller above " mentioned is passed under a rod of iron (or a weight may be " used), and through a brush or brushes, the rod serving to " keep the worsted at a proper degree of tension for winding, " and also serving to test the said worsted before it is wound " on the bobbin and handed to the operative at the heald " knitting machine to be re-knit, the brush or brushes cleanse the " said worsted during its passage to the bobbin. The braiding " is wound from the weighted creel to a bobbin ready for " re-knitting."

[Printed, 10*d*. Drawing.]

A.D. 1865, December 21.—Nº 3307.

LAYCOCK, WILLIAM EDWARD.—(*Provisional protection only.*) —" This invention relates to such looms as are used in weaving " the fabrics known as horsehair seating, or fabrics of a similar " character, in which the hair or weft is inserted in the fabric " singly in separate hairs or parts of a hair.

" The invention consists, in the first place, in the use of an " endless chain or band passing round wheels or pulleys so as to " be parallel with the side of the loom, or thereabouts, one or " both of such wheels or pulleys having a slight amount of " rotary motion given thereto at each beat of the lay of the " loom, whereby the chain is caused to move gradually onwards " in one direction. The upper part of this chain or band passes " near one end of the lay, and on this portion of the chain " clamps or holders are placed, which have been previously " charged or filled with hair, these clamps or holders presenting " each hair in succession to the action of a shuttle or other " instrument, which is passed to and fro in the shed by a " suitable cam or other means. The shuttle thus passes across " the lay through the shed, and seizes the end of the hair then " opposite to it, and then returns and draws such hair through " between the warp threads, that hair being then beaten up by " the lay, and the chain or band with the clamps being moved " forward so as to present another hair to be taken at the next " advance of the shuttle."

[*Printed, 4d.* No Drawings.]

A.D. 1865, December 22.—N° 3311.

D'AUBRÉVILLE, Léopold.—(*A communication from Gerber Ulrich.*)—"This invention consists in simultaneously weaving "two separate cloths or fabrics of any kind on a common hand "or power loom, the two cloths being woven above one another, "and a single batten being used, fitted with a single reed divided "lengthways in two parts, and also a single harness for both "warps, the heald thereof being furnished with two rows of "stitches or eyelets for working the warps. There are of course "two shuttles plying above one another betwixt their respective "warps, the said shuttles being actuated as usual. There are "also two rollers for each fabric, the one for the warp, the other "for the woven cloth to be enrolled thereon."

[Printed, 10*d*. Drawings.]

A.D. 1865, December 23.—N° 3320.

SMITH, William.—(*Provisional protection only.*)—The inventor says,—"My invention consists in the production of ornamental "forms, devices, or trimmings to be applied to velvets, ribbons, "lace, and other textile fabrics, and also in the machinery "employed therein. To effect this it is necessary to pass the "fabric to be so ornamented or figured over a heated cylinder or "other surface. I employ a hollow tube or tubes to the top of "which is or are attached a wire or wires; through the tube "or tubes I pass as many threads as the pattern desired may "require; these threads are passed to the cylinder. I then cause "one, two, or more revolving shuttles as required, each of which "carries one or more bobbins of gimp, silk, or other material, to "revolve round the tubes, and threads, and wires, and as they "revolve the material is drawn off the bobbins by the revolution "of the cylinder, and the pattern or device is thus formed according "to the distance between the wires and threads, which thus "produces an open-work pattern or device. The trimming is then "to be slightly moistened and applied by pressure or otherwise "to the velvet, ribbon, lace, or other fabric, which then passes "under a roller, and the ornamental device is thus attached and "fixed upon the fabric forming the body of the trimming."

[Printed, 4*d*. No Drawings.]

A.D. 1865, December 23.—N° 3334. (* *)

HURN, George, and HURN, Daniel.—"Improvements in "obtaining and employing continuous lengths of tanned leather "for various useful purposes." The prepared skin or hide is pared or rounded off at the edges or corners, and "continuous "lengths are cut therefrom by causing the knife or instrument to "traverse the entire surface of the skin, so to divide it in an "endless piece or coil, which is subsequently submitted to a "longitudinal stretching, damping, greasing, or hammering, as "may be found necessary for straightening or removing the "angles and curves formed by the cutting." The lengths, which vary "from one hundred to two thousand feet or more," are, when required, passed through dies for rounding or otherwise forming them into strips, threads, or bands. The length may be employed for "weaving, plaiting, twisting, braiding, or manufacturing into "ropes or otherwise, either plain or in combination with hemp "and flax, cotton, silk, wool, or hair of all kinds and painted, "stained, dyed, varnished, and colored, as may be found necessary, "or otherwise ornamented or waterproofed." Among the many uses mentioned to which the lengths may be applied are matting, canvass sails, stack and rick cloths, waterproof coverings, bed sackings, sacks and bags, different articles of wearing apparel, &c.

[Printed, 8*d*. Drawing.]

A.D. 1865, December 29.—N° 3362.

HARRISON, William, and WALKER, Thomas.—The first part of this invention "is applicable in turning up or making true "the crank axles of looms and other machines. The crank shaft "is secured to a fixed headstock, and the revolving cutters are "mounted in sliding headstocks; one or more sets of cutters are "required, part of which make true the crank or cranks, whilst "the others turn up the ends and intermediate parts of the axle. "The cutters for turning the cranks rotate on adjustable head-"stocks, the position of which on the bed is regulated according "to the throw of the crank or cranks. The cutters for turning "up the straight part of the crank axle revolve in headstocks "that can be moved lengthwise like the loose headstock of a "lathe."

The second part of the invention "is particularly suitable for "boring, turning, or shaping bushes, bearings, and other small

" articles used in machinery for manufacturing cotton and other " fibrous substances, and it consists of certain improved machinery " for performing these operations simultaneously. The article to " be operated upon is held in a face plate or chuck connected to " a headstock, which does not revolve, but is moved laterally " on a bed plate; to this bed plate is fixed another headstock " with revolving cutters acting on the circumference, and with a " revolving boring tool for making the required hole; a cutter is " also let into the boring bar for facing up the article under operation. Or the article to be bored and turned may be secured to " a fixed headstock, and the boring and turning tools connected " to a sliding frame."

[Printed, 1*s*. 10*d*. Drawing.]

A.D. 1865, December 29.—N° 3365.

HARRISON, Joseph John, and HARRISON, Edward.—" Improvements in looms for weaving."

The first part of this invention "relates to that portion of the " loom called the 'check motion.' " "Immediately behind each " shuttle box of the loom a vertical rod is placed, which is secured " to and projects from the ordinary stop rod of the loom and is " employed for supporting a horizontal eccentric segment or " circular disc which is allowed freely to turn thereupon, the periphery of which may be plain or covered with leather, caoutchouc, or other similar material; this disc is allowed freely to " work through an aperture formed in the back board of the " shuttle box, the amount of its inward or angular motion being " governed by pins projecting therefrom, which, when brought " into contact with such back board or other impediment, prevents " or checks its further movement. The position of the disc when " not in action is arranged so as slightly to protrude through the " said aperture in order that the forward action of the shuttle " when entering the box shall catch or rub against its periphery " the frictional contact of which causing it partially to turn, " effects a gradually increasing pressure upon the shuttle until " it becomes finally stopped and retained. The reverse action of " such eccentric disc when the shuttle is leaving the box instantly " releases or reduces the pressure upon such shuttle."

The second part of the invention "is designed for the purpose " of stopping the loom in the event of the shuttle 'floating' or " not entering the shuttle box, and consists in attaching to the "spindle of the eccentric or disc, herein-before described, a finger "which, when the shuttle 'floats' and the eccentric disc remains "undisturbed, forces or actuates the catch upon the stop rod in "such a manner that it shall, with the forward action of the "'slay,' come into contact with the 'frog,' thereby stopping the "loom in the ordinary manner."

[Printed, 8*d*. Drawing.]

A.D. 1865, December 29.—N° 3366.

WATSON, Thomas.—This invention "relates to that portion of "the power loom known as the 'shedding motion.'"

The first part of the improvements "consists in the peculiar "arrangement and disposition of the levers or treddles, which are "secured to brackets, one on the cross rail, and the other on the "back rail of the loom or other convenient place, the said brackets "forming the fulcrâ of two levers or treddles to which the healds "are attached; these levers are supplied with bowls, and are "arranged one above and the other below a tappet or cam, which "when revolving, act upon the said bowls so as to elevate and "depress the treddles to which such bowls are attached, thereby "effecting through their connection an even and regular motion "to the 'healds' when shedding.

"Secondly, the invention consists in the use and adaptation of "pointers or fingers, which are secured to the tappet or cam "actuating the treddles; these pointers enable the operative to "adjust the position of the tappets and treadles. The said tappet "and treddles when in their true position allow the bowls of "the said levers or treddles to be exactly vertical and in a line "above and below with the centre of the tappet shaft; this is "more particularly determined by the pointers or fingers, secured "or cast to the tappet or cam.

"Lastly, the improvements consist in balancing or counterpoising "the weight of the said treddles, which, being of the first "and second order of levers, that is, the top lever having its bowl "behind the fulcrum and its connection with the 'healds' in "front, becomes balanced, thereby liberating or divesting the "'healds' of their weight; but the second or under lever having "its bowl and connection with the 'heald' in front of its fulcrum, "it requires a counterbalance which is effected by connecting "the treddles or levers together by a rod at points in a direct line "with the centre of the tappet shaft and treddle bowl studs,

" or by extending the lever beyond its fulcrum, and attach-
" ing or hanging thereto a weight or other equivalent, which
" thereby relieves the 'healds' and allows their free action whilst
" shedding."

[Printed, 8*d.* Drawing.]

1866.

A.D. 1866, January 1.—N° 1.

BULLOUGH, John, and ROSSETTER, William.—This invention relates to looms for weaving, and consists in self-acting mechanism for changing the shuttle "in which the weft has " broken for another with the weft ready for weaving without " stopping the loom, and when the weft of this second shuttle " becomes broken to replace it by another shuttle with new weft " and so on." The patentees have a horizontal shuttle box at each side of the loom, which work in horizontal slides. Also two weft motions, one at each side of the loom, which work alternately. "The loom is driven by friction pulleys instead of by " the common fast-and-loose pulleys." "There is also a sliding " bar at each side of the loom, which is worked from an eccentric " on each end of the tappet shaft. These bars have each a notch " in them made to receive a gravitating catch, which catch com- " municates with a stop, which it removes when the shuttle is to " be changed, and it is so arranged that it will only remove this " stop when the loom has got reduced to as slow a speed as may " be deemed necessary to enable the operation of replacing " shuttles to be performed."

When the weft breaks one of the weft motions, instead of stopping the loom, disconnects the friction pulleys, and the strap is left driving a narrow disc fast to the shaft; "the loom then " begins to run slower and slower, and it will continue to run " slow till the weft is renewed."

[Printed, 1*s.* Drawing.]

A.D. 1866, January 2.—N° 14. (* *)

STAUFEN, Werner.—(*Provisional protection only.*)—This invention relates to the treatment and application of the fibres of the plants known as "Attalea funifera, Leopoldinia piassava, "Caryota urens, Agava Americana, Arenga saccharifera, Cocos "nucifera, Tillandsea usneoides." In describing the process employed the inventor says:—"I take the vegetable materials in "the state as they are imported, and boil them in an alkaline "solution for a longer or shorter period (say, from half an hour "to two hours) as may be required to remove the resinous, "gummy, woody, or other matter adhering to the fibres; the "fibres, when removed from the solution, are placed in a bath "containing a mordant preparatory to dyeing. In dyeing these "fibres I mix with the dyeing solution a certain proportion of "soapy matter, using about 1 to 4 lbs. for every 100 lbs. of "material to be dyed. When dyed the fibres are dried in the "open air or by artificial means, and then subjected to the action "of suitable machinery for opening, combing, straightening, "and polishing the fibres. The fibres are ultimately separated, "sorted, and selected for the purpose required."

The finer of these fibres are described as being suitable for "weaving" and the "making of rope yarn," as also for fishing lines, covering telegraphic cables, and other similar purposes. The coarser fibres may be used as a substitute for bristles, or in lieu of horsehair for stuffing cushions and other articles, and in the latter case they are curled in the same manner as horsehair, being afterwards steeped in water until they become soft, and then subjected to "a high degree of dry heat."

The inventor refers to the specification of a previous invention for which Letters Patent were granted to him A.D. 1862, No. 1279.

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 4.—Nº 28.

WILLAN, Robert.—(*Provisional protection only.*)—"This in- "vention relates to power looms used for weaving cotton goods, "or such looms as require a 'weft grate,' and has for its object "the arrangement of the said 'weft' grate in such a manner that "no part of the reed space or available space between the slay "swords is occupied by such weft grate, and the reed is brought "into the centre of the loom and opposite the healds and warp "beam."

"The slay sword nearest the weft grate is cranked or 'set-off' "at its upper part in the direction of its nearest shuttle box, in

" such manner as to admit of the weft grate being moved or set " back (in the direction of the same shuttle box) clear of the reed " space or available space between the slay swords, thus a wider " 'piece' may be woven without increasing the size of or space " to be occupied by a loom so constructed."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 5.—N° 36.

MOORE, John, MOORE, Henry, and LUND, George.—(*Provisional protection not allowed.*)—" This invention has for its " object the dispensing or partial dispensing with healds in looms " for weaving, and consists in making the reed of the loom act " as a heald by lifting or depressing the threads, which will pass " through holes in the dents. All the threads may be lifted and " depressed in this way by a double reed, or half may be done by " the reed, and the other half by a heald or by a rod, which " will in that case lift or depress all the threads, leaving the reed " to raise or depress those which pass through the holes in its " dents."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 8.—N° 52.

SAGAR, Thomas, KEIGHLEY, George, CLEGG, Joseph, and RICHMOND, Thomas.—(*Provisional protection only.*)— " Certain improvements in looms for weaving." This " invention " consists in dispensing entirely with the healds or heddles, and " in lieu thereof forming the shed by raising and lowering the " reed or reeds through which the warp threads are drawn. The " reed or reeds are constructed with an eye or eyes in the dents, " so that when the reed or reeds, in the eyes of which one " part of the warp threads are passed, are raised or lowered by " means of a tappet or tappets, cam or cams, or by the usual " treadles or other known means, a portion of the warp threads " are raised or lowered while the others remain the contrary way, " either down or up, to form the shed. The other or latter " portions of the warp threads are actuated by a rod or rods " across the warp worked by a cam or cams, tappet or tappets, " or lever or levers, to form the other part of the shed."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 9.—N° 59.

MOORE, Henry, and RICHMOND, Thomas.—(*Provisional protection only.*)—" Improvements in looms for weaving." "The " object of this invention is to strike up the weft after two or " more picks are made, and after two or more motions of the " healds instead of after each pick." This is accomplished " by " placing the picking tappets and the heald tappets on the crank " shaft, thus dispensing entirely with the tappet shaft and the " wheels which drive it. The reed will thus drive up two or " more picks at each stroke of the slay, according to the arrange- " ment of the tappets."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 12.—N° 107. (* *)

SUTHERLAND, Edward, and SUTHERLAND, Horatio.—(*A communication from Joseph Vanzina (d'Etienne.)*—(*Provisional protection only.*)—Improvements in obtaining fibre suitable for textile purposes from the dwarf palm "chamærops humilis." " The leaves are the part of the plant from which the fibre is " obtained, and this may conveniently be done by passing the " leaves between crushing or breaking down rollers, and then " heckling or combing the fibre."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 13.—N° 118.

GADD, William, and MOORE, John.—These improvements consist in arranging looms for weaving, so that they may produce two or more separate and distinct fabrics at the same time, either in horizontal or other directions.

" Separate shuttle races are used, but the upper one in horizontal " looms is essentially different to the lower one, as if the top one " was like the ordinary bottom one the practical working would " be impeded. The top one simply consists of a narrow rib of " iron, wood, or other suitable substance placed at the required " distance from the reed with its surface at the proper level; " thus, when the lower half of the threads in the upper shed are " pressed downward, they themselves form the race for the upper " shuttle. The loom is constructed with one broad reed (but " there may be separate reeds, one for each fabric). This reed

" has a rib applied to it on the same side as the harness at the " proper height to give the required angle to the threads forming " the upper shuttle race."

"There is also an apparatus for facilitating the operator putting " in threads which have broken. This apparatus consists of a " thin rod the length of the width of the cloth, and fastened at " each end to small levers, so that when a thread is broken in the " bottom shed it may be drawn through in the upper part and " passed under the rod (raised for the purpose), and then when " the rod descends it carries the thread with it to the bottom " shed, and allows it to weave into the shed."

"The advantage of the vertical loom is that it affords greater " facility for seeing whether the respective cloths are weaving " correctly or not, and for getting to the respective threads " quickly. Supposing two cloths are being produced in a vertical " loom, then we have two warps, one on each side of the loom, " between which both the crank shaft and tappet shafts pass, one " over the other. The sheds are opened simultaneously on each " side of the loom by double or two sets of single harness in two " separate reeds (one very wide reed could be used, but not " perhaps to the same advantage). Two sets of work rollers are " used. There are two work bars, each of which carries a separate " cloth. The picking stick actuates both shuttles at once, there " being a separate box picker and strap to each shuttle, separate " stop rods and weft forks. The shuttles necessarily run on the " reeds, but each reed is distinct from the other, and has an " upright race placed at the proper angle for the threads with a " division between the front and back race. In case a jacquard " is used it would be placed above the loom, and the strings " would pass down the division stated, and be attached to the " centre of the healds, which healds would pass under rollers " fixed each side the strings, so that when the strings were pulled " the healds would be drawn towards the centre from both sides, " The picking stick is placed between the two shuttles, so as to " give both the same tendency, viz., towards the upright race, as " otherwise one shuttle would have a bias one way, and the other " another. The upright bearings or races are placed both between " the two sheds, so that both fabrics may be produced under the " same conditions."

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1866, January 17.—N° 159.

WYLD, John, and KERSHAW, John.—"Improvements in "machinery or apparatus for warping and making leashes in "warps for tape sizing machines."

The patentees say:—"The first part of our improvements is "in the creels for holding the warping bobbins, and consists in "placing them in an upright position with the ends thereof "towards the place where the threads of the bobbins meet "together.

"Our next improvement is in the manner of placing the bobbins "in the creels. We do not use bobbin skewers, each bobbin "stands upright, and there is a pivot to hold the top of the "bobbin, and another pivot to hold the bottom, and the bobbin "can be put in its place and run in its place without a skewer "through it.

"Our next improvement is in the hecks. The hecks with the "creel and bobbins are in an upright or perpendicular position, "and the threads are laid in the hecks without passing through "the ordinary round loops called eyes. One half of the threads, "or every alternate thread, remains stationary, and the other half, "also consisting of every alternate thread, will slide by means of "rods on either side of the stationary threads. The sliding of the "rods to the right hand or to the left gives the openings for "the leashes.

"Our next improvement is in the variety of combinations which "can be made with the aforesaid creels and hecks. They can be "multiplied so as to hold any number of bobbins or threads "which may be required, and consequently the whole of a "weaver's warp can be warped at once without a warping mill. "The warps can be balled as the threads come from the bobbins, "the warp being then ready for the sizer, or they can be wound "upon a beam and then balled off the beam. The creels with "the hecks can also be arranged in almost any form, in lines, in "a circle, in a triangle, or in a square.

"Our next improvement is in the warping or beaming for tape "sizing machines. We put all the threads for a weaver's warp "on one back beam, and also put leashes in them during the "process of filling the beams, so that the leashes come off the "back beams and pass through the sizing ready for weaver's

" beams. We open the warp when beaming by means of a " straight expansion raddle, which can be expanded or contracted " as desired. We also mark the length of the warp as it goes on " to the beam. By these arrangements there is no waste at the " ends of the back beams, and we can alter the length of the warp " and also the number of threads in the warp at any time during " the filling of the beams."

[Printed, 10*d*. Drawing.]

A.D. 1866, Januuary 19.—N° 179.

JACKSON, Michael.—(*Provisional protection only.*)—This invention relates to silk umbrellas. "The improvement consists " in weaving into the piece of silk from which the gores, which " form the covering of the umbrella, are cut a strip of work about " an inch wide, and composed of wool, hair, or other textile material which can be woven with silk, and will bear greater wear " and tear than the more expensive material. When weaving the " piece of silk these strips of the stronger material are thrown in " in the shape of weft at proper and regular distances apart " throughout the piece, the exact distance of the strips from each " other depending upon the size of gores required."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 24.—N° 234.

LORD, David; LANCASTER, Thomas; and BENNETT, Robinson.—The patentee says:—"The object of our invention is " to prevent the breakage of the warp and also of the yarn in " weaving. For this purpose, in place of what is known as the " 'stop rod' in ordinary looms, we affix to the crank lever of the " loom an arm having a point or toe, which at stated periods " during the motion of what is known as the working part of the " loom acts upon an arm secured to a shaft placed under the said " 'working part.' Upon this shaft is also keyed a flat table, which " bears or supports an arm made or cast at right angles to and " forming part of a lever placed on the front side of the 'working " 'part.' This lever works upon a centre pin secured to the front " part of the working part, and has at the part extreme from the " centre a 'circular flat,' the purpose of which will hereafter be " explained, as well as a spring pressing upon the top of the lever " to keep it in proper position. A stud is also provided (in " connection with the usual break gear) of a suitable size to

" receive a hole made opposite to it in the 'working part' before " mentioned."

"The operation is as follows:—The loom being put in motion " the toe of the arm affixed to the crank lever raises the 'circular " 'flat' in front of the 'working part' by means of the flat table " and intermediate lever, and allows the hole in the said 'working " part' to cover the stud in its usual traverse; but should the " shuttle not be in its proper position the 'circular flat' at once " drops and prevents the hole in the 'working part' from covering " the stud by being opposite the aperture, the swell ordinarily " used in the 'shuttle box' and in connection with our apparatus " by means of a finger lever, indicating that the shuttle is not in " the right place, and thus breakage of warp or weft is prevented, " the break gear being brought into operation. We also use a 'stop' " to prevent the attendant turning the loom the wrong way."

[Printed, 8*d*. Drawing.]

A.D. 1866, January 24.—N° 236.

BOUSFIELD, George Tomlinson.—(*A communication from Henry Benninger, Jacques Benninger, and Ulrick Benninger.*)— " Improvements in looms for weaving." "The loom resembles " an ordinary power loom which has added to it, *a*, the shuttle " carriers with two change shuttle boxes, one on each side, toge- " ther with the following additions; 1, supports for the shuttle " carriers; 2, guides fixed to them for guiding the change shuttle " boxes; 3, each for two shuttles; 4, stops for controlling the " movement of the shuttle driver or picker; 5, horizontal rods " below the shuttle carriers and connected with the stops; 6, a " spiral spring for giving the necessary elasticity to the stops; 7, a " triangle for pushing aside the stop rods, No. 5, which are below " the shuttle carrier; 8, springs placed in the change shuttle boxes " to secure the working of the shuttles; 9, a plate serving as a guide " to the shuttle drivers; 10, a guide for the shuttle; 11, apparatus " placed on each side of the shuttle carriers for stopping the loom " should a thread break; 12, a pawl working on the wheel to " prevent it turning back; *b*, apparatus for raising the change " shuttle boxes; 13, eccentrics on the two extremities of the main " axis for raising the change shuttle boxes; 14, rollers of the hori- " zontal levers, at the end of which a connecting rod 15 descends, " which is guided by pins 16; 17, horizontal lever forming the " principal piece of the apparatus for lifting the change shuttle

" boxes; 18, vertical levers of the change shuttle boxes connected " with forked levers 19, which retain the two ends of the change " shuttle boxes; 20, pins upon which the lever, No. 17, turns; " *c*, combination for the batten apparatus, by means of which two " shuttles follow each other successively from each side; 21, " toothed wheel fixed on the main axis; 22, toothed wheel fixed " on the axis of the gearing eccentrics; 23, axis of the gearing " eccentrics; 24, bearings of the axis 23; 25, cross framing for " supporting the bearings; 26, axis of lateral displacement for " setting free the battens; 27, gearing eccentrics for giving motion " to the above axis; 28, roller carried by the axis of lateral displacement; 29, axis of the double battens 30; 31, forks for " putting the battens in and out of gear; *d*, mechanism connecting the loom with the jacquard apparatus; 32, crank on the " crank axis carrying a stud, 33, serving as an axis for a connecting " rod, 34, which moves the jacquard apparatus; 35, horizontal " lever transmitting an increase of the movement of the connecting " rod to the jacquard apparatus; 36, support with a pin carrying " the lever above-mentioned; 37, rod working vertically, connected " with the jacquard apparatus; 38, apparatus to throw out of " action the jacquard apparatus; 39, apparatus for moving the " jacquard cards at the time of throwing the jacquard apparatus " out of gear, that is to say, for turning the jacquard cylinder " in one or other direction."

[Printed, 8*d*. Drawing.]

A.D. 1866, January 25.—N° 250.

CASTREE, John Alfred.—This invention relates to the picking motions of looms. Instead of the ordinary picking sticks and tappets, the inventor employs "metal or india-rubber springs " expanded or contracted by levers acted upon by the movement " of the slay in connection with inclines or cams. The springs " are each held by a spring catch connected with each shuttle box, " which catches are moved alternately at the time required so as " to release the spring on the side from which the shuttle has to " be delivered, or from the sides of the pieces of fabric when two " or more pieces are woven at one and the same time, and this " invention is applicable to both hand and power looms, and " also to looms having drop or revolving shuttle boxes for fancy " patterns."

[Printed, 10*d*. Drawing.]

A.D. 1866, January 27.—N° 271.

COOK, Samuel, and HACKING, William Henry.—" Improvements in machinery or apparatus for sizing or preparing " yarns or warps to be woven." The patentees say :—" Our invention consists in the application of an improved cavity or double-" cased cylinder for drying warps or yarns after they have passed " through the size. This cylinder is made with an inner and " outer case having a space or cavity of about six or eight inches " between them, which cavity is supplied with steam by means of " hollow radial arms or steam ways cast all in one piece, so as to " deliver the steam direct into the cavity or steam chamber, and " thus prevent a large amount of condensation. By this means " we are able to make cylinders so large in diameter that one " cylinder will do the work much more economically than the " ordinary two-cylinder machine, and also enable two or more " warps to be dried after sizing. In connection with the cylinder, " instead of using a guide roller for the return of the yarn after " passing round the cylinder, we apply a revolving cage or frame, " inside of which we place a fan driven at a high velocity, which " arrangement materially assists in drying the yarn. We also adopt " the system of placing a falling or tension roller or rod between " the cylinder and the weavers' beam to preserve an uniform " tension of the yarn when the machine is suddenly stopped, this " roller or rod being placed in such a position that it acts on the " yarn or warp after the same has been dried, in addition to the " usual method of placing the tension roller at the back of the " machine between the sow box and the back beams. We make " the top of the back creel of a curved form, by which we are " enabled to let the yarn from each beam impinge on the top of " the others, instead of passing under and over, and thus securing " a better sheet, steadiness of motion, and greater facility in " piecing broken ends."

[Printed, 10*d*. Drawing.]

A.D. 1866, January 29.—N° 282.

HARRIS, William Randal. — " This invention consists in " making weavers' healds or heddles of improved forms for the " purpose of allowing more space for the warp." In one modification of the improved healds four cords and eyes are shown. One cord is passed round the front side of the top heald shaft and the front side of the bottom heald shaft; another cord is passed round the front side of the top heald shaft and the back side of the bottom heald shaft; another cord is passed round the back side of the top heald shaft and the front side of the bottom heald shaft; another cord is passed round the back side of the top heald shaft and the back side of the bottom heald shaft. By this means the eyes are kept separate.

[Printed, 8*d*. Drawings.]

A.D. 1866, January 31.—N° 303.

CLAYTON, Robert, RAPER, James, GOULDING, John, and HOWARTH, William.—This invention "is applicable to " the looms for weaving figures or designs on fabrics known as " 'swivel looms,' and it consists in applying to such looms two " or more rows of swivel shuttles, placed side by side, parallel to " the reed, each row of swivel shuttles containing weft of a " different color or quality. The shuttles are moved to and fro " to produce the pattern or design by means of a rack taking " into pinions gearing into teeth on the shuttles in the usual " manner, or by any other equivalent means. As soon as one " portion of the pattern or design has been produced by one row " of swivel shuttles another row of shuttles is brought into " operation; or the shuttles may be worked simultaneously or in " any required succession, so as to weave several colors at the " same time; or the swivel shuttles, instead of being placed " horizontally, as described, may be placed vertically and moved " up and down to bring each shuttle in line with the shuttle-race, " as in drop-box looms of the usual construction; or the swivel " shuttles may be contained in the compartments of segments " which are caused to oscillate on studs fixed to the hand-top or " other convenient part of the lay or batten to bring each row of " shuttles in operation as required."

Another part of the invention relates to the jacquard. "In " order to produce an even shed the grife or instrument by which " the selected hooks are raised is connected to one or more radius " levers, which cause the grife to assume a diagonal position as it " is raised by the usual side bars."

The last part of the invention "consists in raising the warps " requisite to form the portion of the shed for the passage of the " swivel shuttles by means of projections on the grife; by this

" means all the wires of the jacquard may be of the same length;
" these projections may be on a supplementary grife or on the
" usual grife by which the shed of the ground of the fabric is
" formed."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1866, February 1.—N° 318.

BULCOCK, John, and BULCOCK, John, the younger.—(*Provisional protection only.*)—"This invention relates to the " taking-up motion in looms for weaving; and the improvements " consist in the application of a spiked roller or a roller having " small pointed pins projecting from its surface for the cloth or " fabric to pass over or under and hold thereon, in addition to a " plain roller, in substitution of the ordinary taking-up roller, " both rollers being geared together by toothed wheels so as to " rotate at or near the same surface speed."

[Printed, 4*d.* No Drawings.]

A.D. 1866, February 2.—N° 323.

HARRISON, Joseph John, and HARRISON, Edward.—" Certain improvements in looms for weaving." This invention relates, first, to the picking motion; and, secondly, to mechanism for checking the shuttle on its being received by the shuttle box. " The picking and check motion being combined may be thus " described. Two apparatus formed in the back and front of the " shuttle box at their entrance nearest to the loom reed are " constructed so as to receive and allow friction bowls or pulleys " to protrude through and enter the shuttle box. These bowls " are situated exactly opposite each other, and are supported and " held in position upon vertical spindles to which they are secured; " these spindles are supplied with wharfs, and are driven at a high " velocity from any convenient part of the loom, which thereby " gives a rapid revolution to the afore-mentioned friction bowls " in a direction outward from the box in which such bowls are " placed, a similar pair of bowls protruding through apertures in " the opposite extremity of the box, and actuated in like manner " with the exception that they revolve in a contrary direction to " the afore-mentioned picking bowls, are employed for checking " and stopping the shuttle upon its entrance into the box. Both " pair of bowls, viz., the front picking and back checking, are

" alternately caused whilst rapidly revolving to close or advance " towards the longitudinal centre of the box, which is effected by " means of a wedge or cam placed underneath the latter, and " which, whilst reciprocating or revolving, is caused to act " alternately upon the brackets or carriers supporting the spindles, " thereby gives the necessary action to the bowls, causing them " to exert a pressure and act upon the side of the shuttle, and " also to recede from and release the same at the times appointed, " so as to effect the necessary action of picking and checking as " desired. The action of the several parts will now be readily " understood from the following description:—Upon the shuttle " entering the box the front or picking bowls are distended or " opened so as to allow it a free passage into the box, at which " time it is caught or griped by the back checking bowls, which " are closed upon it, the effect of which is to draw it up to the " end of the box, and there retain it until acted upon by the " friction bowls, which is effected by the afore-mentioned wedge " or cam causing such bowls to close upon and press against the " shuttle, at which time and simultaneously with such closing " the back or check bowls recede from each other so as to release " the shuttle of their pressure, which thereby allows the front " picking bowls to impel or project the shuttle at the proper " instant for picking across and through the shed into the opposite " box."

[Printed, 8*d*. Drawing.]

A.D. 1866, February 5.—N° 348.

ABEL, CHARLES DENTON.—(*A communication from Isaac Heer.*) —(*Provisional protection only.*)—" Improvements in elastic fabrics, " and in the application thereof to the manufacture of boots and " shoes."

" One part of this invention consists in manufacturing elastic " fabrics with one warp of india-rubber and two or more warps " of cotton, wool, silk, or other suitable materials of any required " colours and textures such as are ordinarily employed for " weaving, so as to obtain ornamental designs upon the fabric " such as are obtained upon ordinary non-elastic fabrics. In " order to obtain the requisite elasticity of the fabric the india- " rubber warp is wound upon the warp beam, and is passed " across the loom to the cloth beam in a stretched condition, the

" amount to which it is stretched corresponding with the degree " of elasticity required in the fabric. The warps of fibrous or " other materials are arranged in the loom in the ordinary " manner, one or more being situated both above and below the " india-rubber warp, and are woven together with the india-rubber " warp by means of wefts of any required description in the same " manner as that in which non-elastic textile fabrics are woven for " producing either a plain, figured, satin, or pile surface. It will " be seen that when the finished fabric is removed from the loom " the india-rubber warp will contract to its natural length, and " thereby will draw together the entire fabric, which will consequently be elastic to the extent required, and at the same time " have the same appearance as a non-elastic fabric.

" Another part of this invention consists in forming those parts " of the uppers of boots and shoes that have heretofore been made " of a non-elastic fabric with gores or pieces of ordinary elastic " fabric inserted entirely of the before-described elastic fabric."

[Printed, *4d.* No Drawings.]

A.D. 1866, February 8.—N° 382.

LAYCOCK, WILLIAM SAMUEL.—"This invention, for weaving " cloth the weft of which is horsehair or other material consisting " of short and separate pieces, consists in an improved shuttle or " selecting and carrying instrument, which will act in the double " capacity of selecting a single hair at a time from a bunch of " hairs, and of depositing the hair so selected in the warp in order " that it may be beaten up into cloth; and also in a novel " arrangement of clamps, in one of which the thick ends of the " hairs are presented to the action of the shuttle, and in the other " of which the thin ends of the hairs are presented to the action " of the shuttle, and these clamps are actuated by cams or other " media in such a manner that hair can be taken from each clamp " alternately or in any other order of succession. The shuttle is " furnished at one end with nippers, which when the shuttle is " thrust through and across the open shed of the warp lay hold " of one or other of the hairs which are to form the weft of the " fabric, and by the return movement of the shuttle such hair is " drawn into its place in the fabric. The movement of the shuttle " to and fro may be effected by any of the ordinary mechanism " employed for such purpose. The clamps are each formed of " convenient size for receiving a bunch of hairs, such hairs being

" held in the clamp by being lightly pressed by the aid of springs " or other elastic media between two slightly elastic surfaces, " which while preventing the hairs from falling from the clamp, " yet allow the hair seized by the nippers of the shuttle. to be " drawn out from the bunch. The clamps are mounted at that " side of the loom from which the weft is drawn, being connected " to levers or other suitable contrivances which are acted upon by " the cams or other similar media, so as to bring first one clamp " and then the other opposite the shuttle."

[Printed, 10*d*. Drawing.]

A.D. 1866, February 8.—N° 386.

TOWNSEND, JOSEPH.—"This invention relates to the preparing of size or stiffening, and the applying thereof to textile " materials and fabrics, and so as to prevent mildew or dry rot. " Any farinaceous or amylaceous matter, by preference, reduced " to flour may be used for the purposes of this invention, and " one improvement consists in preparing size or stiffening by " mixing such flour with water in a comparatively cold state, or " more particularly at a temperature below 180 degrees Fahrenheit; or a mixture of flour and water may be further mixed " with an anti-mildew paste or composition prepared as hereinafter stated. Instead of combining size or stiffening, prepared " as herein described or otherwise, with tallow or other oleaginous " or fatty matter, before applying it to the textile materials or " fabrics for the purpose of lubricating these and preventing them " from adhering to the heated drying cylinder, the necessary " oleaginous, fatty, or other matter is by this invention applied " (by a roller or otherwise) to the surface of the heated drying " cylinder, and thus, not being previously mixed with the size or " stiffening, cannot prevent the latter from thoroughly penetrating and saturating the textile materials or fabrics.

"The anti-mildew paste or composition herein-before referred " to is formed according to one modification by combining farinaceous or amylaceous flour with chloride of magnesium and " chloride of zinc, and afterwards with chloride of sodium." " The chemical ingredients herein-before mentioned may be " changed for others or for mixtures of others having a similar " action. Thus, for the chloride of magnesium there may be " substituted sulphuric, sulphurous, phosphoric, hydrochloric,

" oxalic, arsenic, or arsenious acid, or compounds of any of these " acids, or silicates or carbonates, or chloride of calcium. For " the chloride of zinc there may be substituted other metallic " chlorides, or sulphurous acid, or sulphite, or hyposulphites. " Finally, for the chloride of sodium there may be substituted " the chloride of potassium or of ammonium, or sulphates or " carbonates of the alkalies."

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 9.—N° 401.

WALKER, JOHN.—(*Provisional protection only.*)—This "invention is designed for the purpose of preventing what are termed " 'floats' in woven fabrics, that is, threads 'floating' instead of " being woven in the fabric, and which are caused by the entanglement of the warp threads or breaking of the 'ends' of yarn " during the operation of weaving. The improvements consist " in arranging upon a bar fixed to the 'press beam' of the 'slay' " or other convenient place on the loom a number of looped or " slotted fingers or pieces of wire that move freely or slide vertically thereupon, the lower or bottom end of each wire below the " slot being formed so as to project towards the yarn or warps; " these wires are arranged upon the said supporting bar in such " a position that when the 'shed' is open the warp threads " simultaneously raise the whole series of wire tumblers from one " end of the reed to the other, but should any one or more of " the 'ends' of yarn become entangled or broken, the tumbler " wires immediately above such ends, not being acted upon when " the 'shed' opens, remain in their lowest position, thereby " causing the shoulder of the slot as the slay 'beats back,' to " come into contact with a rod in connection with the ordinary " stop motion of the loom, and thereby stopping the progress of " the weaving until the yarn is re-united."

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 10.—N° 415.

SEYD, ERNEST.—(*A communication from Wilhelm Vogel.*)—"Improvements in the manufacture of woollen damasks." "The " mode heretofore commonly practised of manufacturing various " colored woollen damasks has been to first dye the yarn employed to form the warp and weft of the work, and to weave "the piece in colors and shades of colors. Now by this invention it is proposed to employ warp and weft threads, either plain or colored, or partly plain and partly colored, so that the work when woven may be afterwards dyed in the piece of any desired color, selecting those colored grounds which are best suited to take the particular dye color required. By these means, instead of the manufacturer or wholesale dealer having to keep a stock of colored damasks on hand, he simply has to keep the partly colored and undyed woven goods and have them dyed to suit the taste of his customers."

[Printed, *4d.* No Drawings.]

A.D. 1866, February 10.—Nº 417.

BINNS, JOHN, and BINNS, WILLIAM.—"This invention has for its object a means of and apparatus for manufacturing jacquard wires or 'lingos,' which are usually made from round wire cut to suitable lengths, one end of each wire is flattened or enlarged, and a hole or an eye is formed in the part so flattened or enlarged."

The invention consists "in the employment of a creel on which a quantity of wire is wound, the wire is then drawn through a number of small rollers, for the purpose of being made perfectly straight (as in ordinary wire cutting machines), and is then received by a pair of larger rollers; on each of the last-mentioned rollers is a rib or projection opposite each other, so that at each revolution of such rollers the rib or projection on each roller will squeeze and flatten a portion of the wire on opposite sides. (These rollers are elliptical in form, so as to allow the wire to clear after being operated open.) The wire is then drawn forwards by means of a pair of tongs working on and actuated by an horizontal shaft; the other end of this shaft is attached by a bolt and connecting rod to an arm or a disc working on a vertical shaft, thus imparting to the horizontal shaft and tongs a 'to-and-fro' motion parallel with the wire. The arm or disc is provided with a slot hole, so that the length of wire drawn forwards by the tongs and shaft (from which to make a jacquard wire) is determined by the distance the end of the horizontal shaft is fixed in the slot hole from the centre of the arm or disc. As each length of wire is drawn

" forwards, the hole or eye is punched, and the wire is cut off " by means of a punch and cutter actuated by a lever (which " lever may be worked by the aforesaid arm or disc) and a spring, " or a tappet and spring will answer the purpose, or the hole or " eye may be formed in the wire by means of a punch fixed in " one of the ribs or projections on the rollers, the other rib " or projection having a hole therein, so that the process of " flattening and perforating may be performed at one operation."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1866, February 10.—N° 418.

RYLEY, JOHN.—This "invention relates to the weaving or " manufacture of the fabric termed 'hair cloth,' which is usually made of horse-hair weft and linen or cotton warp, and the apparatus is designed to single out one hair only at one time from " a number of hairs, and to hold it until the other portion of the " apparatus which acts as a shuttle catches it to take it across the " open 'shed.'

" The improved apparatus consists of a shuttle formed in two " parts or jaws, which open and close by the tension of a spring " (as a pair of spring pincers), and within these two jaws a finer, " smaller, and shorter pair of jaws or forceps are arranged, the " exterior form of the shuttle is narrow at the point of the jaws, " and wider behind (pear-shaped), and as the shuttle is pressed " into the bunch of hair which is held vertically in a moveable " holder at the end of the slay, the wide end of the shuttle " becomes compressed between two ribs or plates, by which means " the external and internal jaws are opened, and in such position " they are pushed into the hair, and on being withdrawn the " inner pair of forceps closes first, and singles out and holds " one hair (the ends or points of the forceps being only sufficiently wide to receive one hair), and when the pressure of the " plates releases the large jaws of the shuttle, they close and " firmly hold the hair whilst it is passed through the shed. At " the other end of the 'slay' a similar box or groove or plates " are used to cause the jaws to open by the compression, and so " release the hair and leave it in the shed to be beaten up into " the fabric."

[Printed, 8*d.* Drawing.]

A.D. 1866, February 12.—N° 432.

WOLSTENHOLME, Robert, and RODGERS, Richard Green.—" Certain improvements in the manufacture of textile " fabrics termed 'moleskins' or imperials and velveteens." This invention consists in arranging the healds when weaving the above fabrics, " so as to employ only five healds instead of " eight, with five pricks to the revolution (or ten as a repeat) " instead of eight pricks or sixteen to the repeat," and in using two healds up and three down to every pick."

[Printed, 8*d*. Drawing.]

A.D. 1866, February 13.—N° 446.

PATTERSON, John.—This invention relates to machinery for cutting " the binding warp or weft uniting two pieces of fabric " which are woven together in the usual manner, such binding " warp or weft when cut forming the pile on two separate pieces of fabric. The double fabric to be cut is guided between two " rollers, the circumferences of which may be plain, or fluted, or " roughened to give the requisite adhesion to the fabric. The " distance between these two rollers must be regulated according " to the length of the binding warps or wefts which are cut by " the sharpened edge of an endless band of thin steel passing " around pulleys in the same manner as the usual band saws. " The sharpened end of the endless band projects slightly beyond " a guide fitting partly into the space between the two rollers. " When the binding warps or wefts are cut each piece of pile " fabric is conveyed away in opposite directions and wound on a " roller or otherwise disposed of."

[Printed, 10*d*. Drawing.]

A.D. 1866, February 14.—N° 465.

HOLDING, Joseph and TODD, Peter.—This invention "is " designed for the purpose of increasing the durability of the " 'reed dents' employed for weaving."

The improvement consists in an " arrangement of mechanism " in connection with the reed that shall give such reed during " the operation of weaving a constant and gradual rise and " fall."

" Secured underneath the slay are two or more brackets which " support a shaft running parallel with and immediately under-

" neath the reed; upon one end of this shaft a ratchet wheel is " secured which is acted upon by a lever pawl secured to the " breast beam. The opposite end of this lever pawl beyond its " fulcrum rests upon the periphery of a disc or wheel secured " upon the end of the cloth roller; this disc is supplied with " one or more indentations or recesses on its periphery into which " when revolving the end of the pawl lever enters, the effect of " which is to bring the pawl into contact with the ratchet wheel " secured to the shaft underneath the 'slay sword,' which thereby " cause with each beat of the slay during the time the pawl is " in contact with such ratchet an intermittent revolving motion " to the shaft upon which it is secured. Upon this shaft two " excentrics are secured and are connected by clips and projecting " fingers with the reed, thereby communicating to such reed " during the revolution of the said shaft the necessary rise and " fall as desired."

[Printed, 8*d*. Drawing.]

A.D. 1866, February 14.—N° 468.

BARLOW, James.—"Improvements in bleaching, dyeing, " printing, and sizing cotton and other yarns or threads."

According to this invention " the several processes of bleaching, " dyeing, printing, and sizeing yarn and thread which have " hitherto been performed separately, distinct, and apart from " each other, are combined into one continuous operation and " performed by one machine, in which the parts necessary for the " several processes are suitably connected and combined. The " yarn or thread under operation is first passed from the creel of " bobbins or beams through a comb or reed of the ordinary con- " struction and then through a trough containing water for the " purpose of removing any loose impurities, or instead of water " through a solution of chlorine or other bleaching liquid, on " leaving which the yarn passes through a second trough con- " taining a mordant, after which it is washed by being drawn " through water and immediately after dried or partially dried by " being passed through steam in a suitable chest or over a chest " or cylinder heated by steam. The yarn is now passed through " a vat containing the dye, and after this, if required, through " steam or through a suitable fluid for the purpose of raising or " fixing the color; after this it is passed through size, then over " the drying cylinders, and finally to the beaming, dressing,

" reeling, or balling machine. The operation of printing may " also be carried out by introducing the necessary printing rollers " and passing the yarn over them either before the process of " dyeing or after it or instead of it."

Another part of the invention " consists in subdividing the " troughs containing the mordants and the dyes by cross partitions " so that the several threads passing through the machine at the " the same time may be dyed in different colors or partly left " uncolored."

[Printed, 10*d*. Drawing.]

A.D. 1866, February 16.—N° 499.

WHITEHEAD, JAMES HEYWOOD.—" This invention has for its " object improvements in the manufacture of fabrics composed of " india-rubber and cotton or other vegetable fibres. For these " purposes the yarns or threads of which the warp and weft of a " fabric is to be composed are (both or either of them) coated " with a vulcanizing compound of india-rubber, and when woven " the fabric is to be subjected to heat, as is well understood, in " order to produce the change known as 'curing' or vulcanization. In some cases the fabrics composed of coated yarns or " threads after being woven and before being subjected to heat " to produce the change are spread over with a further coating of " a vulcanizing compound of india-rubber in like manner to that " ordinarily practised with fabrics woven in the ordinary manner " when using uncoated yarns or threads. These fabrics are then " subjected to heat in the ordinary manner to produce the " change."

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 16.—N° 501.

WHITEHEAD, JAMES HEYWOOD.—" This invention has for " its object improvements in the manufacture of endless cloths " suitable for use in paper making machinery and for other " purposes." It is proposed to employ cloths of cotton, linen, or vegetable fibre woven in such manner that the warp is buried, the weft being as much as possible kept on the surface of the fabric. The joint for rendering each cloth endless is made by bringing together the ends from which the warp threads project, the weft having been removed for a short distance. The warp threads are drawn into the opposite ends of the fabric by a needle and are secured by tyeing each separate warp thread together in various parts, thick warp thread being used each composed of several smaller ones which are tied separately.

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 17.—N° 507.

NELSON, SAMUEL.—" Improvements in shuttle tongues." Instead of brazing, rivetting, or otherwise permanently fixing the point of each spring to the point of each tongue, these parts are made separate and distinct from each other, and the point of the spring is held to the tongue by entering it into a hole or indentation at or near the point of the tongue. " The other end of " the spring passes through a hole in the shank or tumbler, and " is placed in contact with a tumbler lever or movement which " allows the spring to be close to the tongue when the tongue is " turned out of the shuttle, but swells or curves the spring when " the tongue is turned into the shuttle, and at the same time " leaves that end of the spring free when the tumbler lever is " turned back."

[Printed, 8*d*. Drawing.]

A.D. 1866, February 17.—N° 509.

LEA, HENRY.—These improvements relate to looms in which the shuttles are worked by compressed air. The patentee says:— " My improvements consists in driving the shuttle across the " loom by means of a blast of atmospheric air produced by a " single stroke or passage of a piston or diaphragm within a " hollow cylinder, which cylinder is in free and open communi- " cation with the shuttle box of the loom without the interven- " tion of a storage vessel, valve box, valves, or taps and apparatus " for actuating the same."

" My invention consists, secondly, of the following improve- " ments in the shuttles and shuttle boxes of looms, in which the " shuttles are worked by compressed air. I make the shuttle box " slightly larger internally than the shuttle, and I place at the " mouth of the said shuttle box a collar of leather or other " flexible material made in one or more parts, and of such a " shape as to close upon the shuttle by the pressure of the blast " of air, so as to form an air-tight or nearly air-tight joint. I

" also make the shuttle of a nearly rectangular section as usual, " but with a solid bottom, and I provide a hinged lid to close the " opening by which the cop is introduced, my object being to " preserve the surface of the shuttle parallel and unbroken, so as " to enable the aforesaid collar on the shuttle box to form an air- " tight or nearly air-tight joint during the motion of the shuttle " within the box."

[Printed, 1*s*. Drawing.]

A.D. 1866, February 21.—N° 542.

SMALLEY, John.—(*Provisional protection only.*)—This invention "has for its object the weaving of fabrics, where part of the " warp threads employed are kept straight (as in plain woven " fabrics), and part are crimped in the act of beating up the weft, " the result of such action being a fabric partly of plain and " partly of puckered stripes, or a fabric where the plain stripes are " concealed in the puckered stripes, applicable for towels, " petticoats, and various other purposes."

The invention consists in driving the beam containing the warp to be crimped, so as to deliver a positive and definite length after each pick, or as often as required, this is accomplished " by placing " the beam containing the warp to be crimped so that its surface " will rest upon the surface of a beam or roller covered with rough " cloth or sand to make it adhere to the warp." This roller is then geared with the taking up roller so that every time the cloth is taken up a given length of warp will be unwound.

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 22.—N° 546.

ROBINSON, Matthew, ROBINSON, John, and SMITH, William.—" Improvements in reeds used in looms for weaving." The patentees say :—" We make the dents of the reed from a continuous wire, by bending it either by hand or power similar to " the ordinary expanding and contracting reeds or combs. We " then thread each end of the dents into one or more spiral " springs instead of pitch bands, and pass straight horizontal " wires or rods of partly circular section through the springs for " preventing the dents from coming out of the springs, and " afterwards place the ends of the dents with their springs and " wires in metal tubes, each having flanges forming a groove for

" the dents to pass through, and to both ends of the tubes we " fix broad dents for keeping the tubes and reed together, and we " apply this system of threading the ends of the dents into spiral " springs to reeds, in which the dents are formed of separate " pieces of wire."

[Printed, 10*d*. Drawing.]

A.D. 1866, February 23.—Nº 555.

PASS, James.—(*Provisional protection only.*)—" Improvements " in the manufacture of elastic reeds and combs for weaving and " other purposes."

The improvement " in the manufacture of elastic reeds consists in filling the interior of the usual hollow ribs now employed " for holding the dents or hollow ribs made of lead or other soft " metal, or of gutta percha or other yielding substance, with " vulcanized india-rubber or other suitable elastic substance " instead of cement or other material as now customary, by which " means the desired elasticity is given to the dents."

The " improvement in the manufacture of elastic combs for " dressing machines and other purposes, consists in the application " of the hard compound of india-rubber, commonly called " vulcanite, in lieu of wire for the dents of such combs."

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 24.—Nº 572.

RICHMOND, William, RICHMOND, Thomas, and RICHMOND, James.—(*Provisional protection only.*)—" Improvements " in the manufacture of healds, and reeds or combs, and in the " machinery employed therein." The inventors say:—" In " manufacturing healds according to our invention we employ a " creel with twice as many bobbins or cops as there are eyes in " the finished heald, on these bobbins or cops the yarn for making " the heald is wound, or the yarn may be wound on a beam. All " the ends of yarn are taken through a reed or comb of the ordinary construction, or constructed according to our improvements, as herein-after described, two ends in each dent or space, " the metal or other eyes are then put on, two ends go through " each eye, and any number of eyes can be put on for any number " of staves or healds at one time. When the eyes are put on " they stand in rows of the breadth of the heald required, the

" ends are then drawn forward through the eyes all at one time " to any length that may be required, each front row of eyes is " then brought forward at one time and placed at equal distances " apart. The heald staves are then placed across the yarn both " underneath, in between, and on the top; the surface of each " stave nearest the yarn is coated with glue, paste, or cement, " pressed and secured all at one time; the staves are then separated and turned back to back, and again secured together, " thus completing the heald; or instead of securing the ends of " yarn to wood staves they can be secured to strips of paper, " cloth, or leather, by glue, paste, or cement, and afterwards fixed " to the heald staves, the healds may be made of cotton or other " yarn, or of metal wire. Our improved reed or comb is made " to expand or contract, and consists of two flat metal bars " which stand parallel to each other a little distance apart; " through this opening or slot the dents are placed, and each dent " then drops in a groove in a flat bar placed underneath; between " each of these dents there is placed a wedge, all the thick ends " of the wedges being on one side; when these wedges are moved " forward by a flat bar worked by a screw the reed or comb " expands, and when they are moved back in the same manner " by a bar on the opposite side they contract the wedges, and " dents are secured and braced together by a screw at each end."

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 27.—N° 596.

ALLANSON, William, and LOWE, Robert.—(*Provisional protection only.*) — " Improvements in shuttles for weaving." " The improvements consist, first, of a float detector, by means " of which the weft thread is broken, causing the stoppage of the " loom whenever a float is being formed in the shed; and, " secondly, of a bolt instead of the usual pin for the firm holding and proper steadying of the skewer, and for preventing the " wear and tear consequent upon the necessary frequent changing " of the pin and skewer as at present used."

[Printed, 4*d*. No Drawings.]

A.D. 1866, March 6.—N° 674.

HAWORTH, George, PARRINGTON, Thomas, and HUDSON, William.—" An improved composition or preparation for

" sizing cotton, linen, or woollen yarns, and other similar sub-" stances."

" The ordinary composition or preparation for sizing purposes " consists of a mixture of flour, water, tallow, and soft soap, " after it has been fermented." This " invention consists in the " addition to these ingredients, but used in somewhat different " proportions, of a portion of caustic soda or caustic potash, but " the same is not to be applied unless and until the flour has gone " through the process of fermentation."

[Printed, 4d. No Drawings.]

A.D. 1866, March 15.—N° 777.

COLE, James, junior.—" Improvements in the manufacture of " elastic gusset webs." According to this invention " the india-" rubber or elastic warps are arranged as heretofore to be worked " into the fabric as dead or stationary warp for a time, but at " those parts where the woven webs are divided into gusset pieces, " and where the sewing takes place when affixing the gusset pieces " into boots, shoes, or other articles, the india-rubber or elastic " warps in place of continuing to act as dead or stationary warps " are by the harness of the loom caused to form parts of the " sheds open for the passage of the shuttle or shuttles, and are " thus tied or woven into and form parts of the woven fabrics, in " place of being simply shut in or covered by the fabric produced " by the interweaving of the inelastic warps and the weft or wefts. " By the employment of jacquard or other apparatus used in " pattern or figure weaving the parts of an elastic web or fabric " where the elastic or india-rubber warps, as well as the inelastic " warps are caused to interweave with the weft or wefts may be " formed in lines diagonally across the elastic web, or in curved " or other lines across the elastic web, and in such parts of the " fabrics the ends of the elastic or india-rubber warps will be held " securely, and will not be liable to slip as heretofore."

[Printed, 4d. No Drawings.]

A.D. 1866, March 22.—N° 846.

ABEL, Charles Denton.—(*A communication from Anton Funk, Carl Emil Becker, and August Hoffbauer.*)—" Improvements in " jacquard looms for weaving cut pile fabrics double."

" One of the present improvements has reference to the jacquard " apparatus for actuating the figuring warps in looms for weaving

" cut pile fabrics double. In the arrangements heretofore employed " the trap boards of both the front and back part of the apparatus " have been made to rise and fall in order to bring the figuring " warps from the upper into the lower fabric, and vice versa.

"The present improvement consists in making the trap board " of the front part of the apparatus stationary, so that in raising " or lowering the suspension board the knots of those cords that " are brought into action by the jacquard needles are caused to " pass through the holes of the stationary trap boards, so as to " carry the figuring warps into the lower fabric, while those cords " that are not brought into action by the needles are held by the " trap board, so as to form, together with the ground warps, the " shed for the upper fabric.

"Another part of this invention has reference to the mode of " separating the two fabrics when woven, and of inserting and " withdrawing the pile wires. One of the improvements consists " in constructing the knife or cutter of a narrow curved and " pointed blade, which is attached to a reciprocating bar by the " point thereof being passed through a slot in the said bar, while " the end thereof is held by means of a screw or pin passing " through it and through a projecting boss upon the bar.

"Another improvement consists of a combined arrangement " of the mechanism for actuating the aforesaid cutter and for " inserting and withdrawing the pile wires, whereby the motion " imparted to the sliding bar carrying the cutter is made to effect " the withdrawal of the pile wires from the fabric. For this pur- " pose the sliding bar carrying the cutter works through a guide " at one end, whilst at the other end it is attached to a carriage " capable of sliding upon a rail fixed to the framing, and receiving " a reciprocating motion by means of a working lever actuated " by the crank of a revolving crank shaft. Near to this carriage " the cutter bar is provided with a hook, which as it is made to " recede from the selvage of the fabric by the one motion of the " bar, hooks into the loop of the front pile wire in the fabric and " draws it out. Above the carriage actuating the cutter bar is " situated a second carriage, also receiving a reciprocating motion " upon a fixed rail by means of a rocking lever attached by an " adjustable connecting rod to a second rocking lever, which " receives the required motion by means of a cam upon the " before-mentioned crank shaft; this upper carriage carries a " slide capable of moving backwards and forwards on the same

" in a direction parallel with the selvage of the fabric; the front
" end of this slide carries a trunk, which as the carriage travels
" to and from the fabric is made to move against a 'shunt rail'
" arrangement, whereby the slide is gradually brought forward
" towards the pile wire that is being drawn out, while the carriage
" is moving away from the fabric, while at the end of such
" motion the slide is suddenly drawn back by a rod or arm
" actuated by the loom until its truck comes in contact with a
" fixed rail, in which position it moves with its carriage towards
" the shed formed by the figuring warps. The back end of this
" slide has an arm reaching down to the level of the cutter bar
" attached to the lower carriage, where it is provided with a
" notch having a small sliding piece actuated by a spring for the
" purpose of holding the end of the pile wire. The relative
" motion of the upper and lower carriage is so arranged that as
" the latter moves away from the fabric drawing out the front
" pile wire by means of the hook on the cutter bar, as described,
" the former is made to follow it closely while the slide upon it is
" advancing from the backward to the forward position, as before
" described. When the slide has arrived at the forward position
" the upper carriage overtakes the lower one and the pendent
" arm of the slide takes the pile wire that has been drawn out off
" the hook of the cutter bar; the slide is then suddenly drawn
" into the backward position, carrying with it the pile wire, the
" other end of which is at the same time moved backward by a
" rocking forked lever, the upper carriage is then pushed rapidly
" forward so as to insert the wire into the shed formed by the
" figuring warps.

"Another improvement has reference to the mode of drawing
" off the finished fabrics after being separated by the cutter, and
" consists in employing for this purpose two breast beams only,
" one for each fabric, which breast beams are situated a certain
" distance apart, so that the two fabrics as they are cut asunder
" separate in being drawn forward by the beams, the surfaces of
" which are provided with points which take hold of the backs of
" the fabrics. The double fabric as it is woven passes between
" two guiding surfaces, which steady the fabric for the action of
" the cutter, and which widens out at the point where the fabrics
" are cut asunder, so as to form an angle corresponding with that
" formed by the two fabrics as they pass to the breast beams."

[Printed, 2s. Drawings.]

A.D. 1866, March 27.—N° 893.

GEDGE, William Edward.—(*A communication from Adolphe Benjamin Albert François Joseph Lepoutre-Pollet.*)—"The appli-
" cation of metallic substances upon textile materials in the state
" of thread." This invention "consists in applying the metallic
" substances on the textile materials in the state of thread. In
" the language of printers upon threads, warps, or woven fabrics
" the word printing is specially devoted to the operation which
" consists in incorporating tinctorial substances with the threads,
" warps, or woven fabrics, whereas the term applying (or in-
" laying) on the contrary indicates the deposit or fixation of
" metallic or other substances on textile fabrics.

"The application is effected in the following manner:—When
" the thread is in hank it is arranged as if it were to be printed,
" but instead of submitting it to this operation the metallic sub-
" stance is applied, the same means being used to deposit or fix
" it as those now in use for applying metal on a manufactured
" fabric. This operation being ended the thread is spooled, and
" it is then used either as warp or woof or as simple thread for
" any purpose."

A better and more regular result may be obtained by a more
" complicated method of operating. A warp is made from the
" thread and arranged as it were intended to be printed upon,
" but instead of printing the metal is applied by the means usually
" employed for metallic applications on woven fabrics. When the
" application is dry the warp is arranged on the weaving loom in
" the ordinary manner."

[Printed, 4*d*. No Drawings.]

A.D. 1866, March 28.—N° 903.

GRAYSTOCK, Robert Mayor.—This "invention is applicable
" to the letting-off and taking-up motions of looms, and it consists
" in obtaining the requisite pressure for letting off the warp and
" for taking up the woven fabric by means of a friction pulley
" and friction clip. The friction pulley is fixed upon the axle of
" the yarn beam or taking-up roller, and the tension of the warp
" or of the cloth can be regulated by tightening and slackening
" the friction clip."

[Printed, 8*d*. Drawing.]

A.D. 1866, March 29.—N° 912.

LAKE, William Robert.—(*A communication from George Crompton.*)—(*Letters Patent void for want of Final Specification.*) —"This invention relates to the harness motion of looms for "weaving fancy goods, and consists particularly in the means "employed for effecting the lifting, depression, and evening of "the harness levers in the construction of the metal loops connecting the harness frames to the heddle levers, and in the "manner of hanging the shaft which carries the levers operated "upon by the pattern cylinder. Upon each end of one of the "side frames or standards of the loom a bracket extends, and in "the two brackets is journalled a cross shaft, upon which are "mounted a series of vertical levers. From a metal loop attached "to the top of each of these levers a wire extends over a pulley "on a cross shaft extending over the loom frame, and from thence "vertically down through the loom and under a similar sheave "or pulley to a similar metal loop attached to the lower end of "each lever. The harness frames are suspended by these wires "between the upper and lower series of sheaves, and through "them the warp is drawn, as is well understood. The upper "ends of the brackets support a rocker shaft, carrying just inside "of its bearings double-armed levers, the upper arms of which "play in slots on the upper ends of curved arms, pivoted to "a cross shaft hung in the brackets just above and parallel with "the shaft on which the heddle levers are supported. The "rocker shaft is connected with and receives motion from a "crank on a rotary shaft connected with and driven by the crank "shaft which operates the lathe. The lower arms of the double-armed levers play in slots in another set of curved arms hung "on the same shaft with the first named, one set extending up "upon one side of the series of heddle levers, and the other set "upon the opposite side thereof. Extending across from arm to "arm of each set of slotted arms, and at the upper ends thereof "is a clamp bar, and when the shed is closed the adjacent faces "of these two bars act as jaws or clamps, securing all the heddle "levers in line. The rotation of the crank shaft will cause the "rocker shaft and its double armed levers to oscillate and alternately effect the opening and closing of the clamping jaws or bars, "the closing of which will always with certainty bring the heddle "levers all into line, while their opening will allow each heddle

" lever to move in either direction, accordingly as the harness to " which each lever is connected is to be raised or lowered to perfect " the shed. Each heddle lever just below or nearly in line with " the clamping bars is mortised through, and upon a pin in each " mortise is hung a small catch lever, projecting through upon " the opposite sides of the heddle lever, swinging vertically, and " having at each end a hook or catch, the hook upon one end " latching over the outer edge of one clamp bar, and the hook at " the opposite end over the outer edge of the opposite bar, one " hook being out of connection with its bar when the other is " latched to the opposite bar. Each hook has an arm connected " with a weighted lever, which is pivoted in a cross shaft, and " rests by its gravity on the surface of the pattern cylinder. In " their normal position all the heddle levers are locked to the " inner clamp bar by the inner hooks, and as the pattern cylinder " rotates the upper arms of all the levers which are not unhooked " from the said bar (which raising disengages the particular " heddle lever from the bar) travel towards the centre of the " loom, and depress the harness levers connected therewith, while " the disengaged levers are engaged with the opposite bars and " carry them in the opposite direction, thus perfecting the shed, " the heddle levers being all returned to their normal position, " clamped in line, and hooked to the inner bar at each oscillation " of the double-armed lever."

[Printed, 4*d*. No Drawings.]

A.D. 1866, March 31.—N° 928.

BULLOUGH, Adam. — (*Provisional protection only.*) — " Improvements in shuttles." The invention says:—" This invention " relates to the shuttle tongues or skewers on which the cops " are placed, and consists in attaching to or near to the point of " each shuttle tongue a spring to be used in addition to the " ordinary spring which extends from the shank of the tongue. " I fix one end of the additional spring to the point of the tongue, " and cause its other end to be guided in a slot formed in the " ordinary spring. The said additional spring yields when the " cop is being placed on the tongue, and the ordinary spring " holds the cop in the usual manner; but when the cop is in its " place the additional spring reacts and springs back so as to " tighten the nose of the cop, and thereby prevent any possibility

" of the cop being shaken off the tongue, or instead of the additional spring I employ a short lever hinged at one end to the " point of the tongue, and having its other end guided in a slot " in the ordinary spring, there being a small spiral spring or a " piece of india-rubber for enabling the lever to be lowered when " the cop is being placed on the tongue and afterwards raised to " tighten the nose of the cop."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 2.—N° 940.

DEWHURST, Robert.—(*Provisional protection only.*)—" Improvements in machinery or apparatus to be employed for " sizing or dressing yarns or threads."

"The first part of this invention relates to the employment of " an additional shaft placed between the ordinary 'winding-on' " shaft and the 'wood roller' shaft, on which additional shaft " and inside the frame of the machine is a toothed wheel gearing " with a pinion on the end of the cone shaft nearest the drying " cylinders. On the other end of the shaft first mentioned and " outside the frame of the machine is a pulley, which by means " of a strap and a pulley fixed on the end of the 'wood roller' " shaft imparts a regular and unvarying speed to the said wood " roller, with an uniform delivery and the avoidance of strain on " the finished yarn as it is wound on the weaver's beam.

" The second part of this invention relates to the use of 'guards' " for the purpose of preventing the yarn as it is wound on or " off the beams from rubbing or catching against the flanges of " the beams; these guards are attached to the side frames of the " machine, and placed so as to bear lightly against the yarn and " clear it of the flanges.

" The third part of this invention relates to the use of hose " pipe for the purpose of supplying water to regulate the size in " the 'sowbox,' and for other purposes for which water may be " required in connection with such machinery."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 2.—N° 942.

CHEW, William, CHEW, John, and LUCAS, West John. —(*Provisional protection only.*)—" Improvements in looms for " *weaving.*" " This invention relates to a means of arranging

" the 'swell' and apparatus connected therewith in such manner " that all pressure or hold on the shuttle when in the shuttle box " is removed before the loom 'picks.' "

The inventors " fix to the back of the shuttle box a stud on " which are placed two bosses, each boss being provided with an " arm or projection, one of which arms or projections is actuated " at each revolution of the crank shaft by a rod or pin fixed to " the crank arm of the loom; the other arm or projection acts " on the ends of the swell (which is elongated), drawing the said " swell back or outwards, and removing all pressure from the " shuttle before the loom picks; or instead of the stud and arms " or projections, a strap of leather or india-rubber may be attached " to the crank arm, or other 'going part' of the loom, and to the " swell in such manner as to withdraw the pressure or hold from " the shuttle before the loom picks.

" The arrangement above described admits of the use of metal " pickers with great advantage."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 3.—N° 951.

NEWTON, WILLIAM EDWARD.—(*A communication from William Breitenstein.*)—This invention relates to a power loom for weaving corsets. "The jacquard machinery, as heretofore, is employed to " determine during the progress of the weaving, and at each " operation what portion of the width of the warp is, and what " portion is not to be operated. A mechanism termed the sectional take-up and operated by the loom takes up the cloth as " it is woven, either along the whole or any portion of the width, " and what portions of this mechanism is to be put in action at " each operation is determined by the jacquard; and a mechanism " operated automatically by the loom pulls out to the required extent the surplus of the shuttle thread whenever the interweaving " is performed on less than the whole width of the cloth; and " whenever the interweaving is extended across the whole width, " the operation of this mechanism is suspended by the jacquard. " The slay, which receives motion in the usual manner from cranks " at each end of the main shaft, is suspended, and has its axis of " vibration above to afford more room below for other parts of " the mechanism." "The shuttle is operated by a pair of carriers " which slide in suitable ways in the race beam of the slay."

[Printed, 2*s*. Drawings.]

A.D. 1866, April 4.—Nº 957.

MACAIGNE, PIERRE JOSEPH.—This invention chiefly relates to means by which economy is obtained in the cards employed in jacquard looms. The improvements consist, firstly, in forming the cards with perforations of a square or lozenge shape instead of round.

Secondly, in the arrangement of the needles. The needles have their eyes all turned to the same side. The first, third, fifth, &c. needles form the first row, the second, fourth, sixth, &c. needles form the second row in the needle board, but the second needle is placed in a diagonal direction to the first, and so on; and either every needle or every other needle has a bend formed in it near to the needle board. The cylinder is made with five, six, seven, eight, or more sides. The needles are supported at the back of the machine by a sheet of metal with holes, each of which is intended to receive the heel at the extremity of each needle and in which a pin is passed to hold it. Rollers are fixed to the "griff or hook " box" for the purpose of avoiding the friction of the ordinary guides.

[Printed, 1s. 10d. Drawings.]

A.D. 1866, April 4.—Nº 964.

NEWTON, WILLIAM EDWARD.—(*A communication from the American Waterproof Cloth Company* (*Incorporated.*)—" Improve- " ments in the manufacture of carpets and other goods having a " raised terry or pile face."

The patentee says:—" The object of the present invention is to " produce a Brussels looped or terry fabric more economically " than heretofore, and of such strength and solidity that they " will wear a greater length of time than Brussels, tapestry, or " velvet carpets, or fabrics of equal weight produced in the usual " manner. To this end I first put in the loom a warp of linen " or jute yarn of the size for carpets of what is technically called " 'six lea' to about the number of two hundred threads, more or " less, upon a width of twenty-eight inches; this is drawn through " a heddle or leaf of a harness and through the reed. I then " draw in through another heddle or harness, and through the " reed, a warp of woollen, or worsted, or other yarns having about " three times the number of threads to that of the linen, or what- " ever number may be required, regard being had to the use for " which the fabric is intended. I then put upon the linen warp sufficient strain to prevent it from being interwoven with the other warps or with either of the other kinds of fillings used. On the worsted warp but little strain or tension is used. When the heddle having the linen or jute warp is elevated the worsted warp is depressed. A linen weft thread is then thrown in, and when the warps are crossed or reversed by the harness or heddle this thread serves to hold the slack worsted warp upon the under side of the tightly-strained linen warps. When the worsted warp is elevated and the linen one is depressed, a weft thread of woollen or other yarn of a size corresponding to the number of threads required upon an inch in the length of cloth is then thrown in. The shed is then changed and the inen weft is thrown in as before."

"Wires may be inserted in lieu of filling thread, and may be withdrawn either before or after the goods are vulcanized, if india-rubber or other gum be used. When a velvet face is required a knife or cutter may be attached to the end of the wire, which will cut the loop open at the top, as in the ordinary manner of cutting the pile of velvet carpets. Or if a filling thread be used to form the pile or tufts, a fixed or revolving knife or cutter may be used upon a slide or carriage traversing across the face of the cloth, and so registered as to cut each row of tufts separately or in any required number at one time; or the face of the cloth may be submitted to a shearing process or the action of knives or saws or their equivalents, either before or after it is attached to the back, and either the filling threads under the loop or the wires, or whatever other material may be used to form the pile, may be liberated, leaving a cut pile or velvet face upon the goods. This fabric may be attached to a back of any material by the use of india-rubber or other vulcanizable compounds, or gutta percha, or other gums, and it may be dyed, or printed, or embossed after being so woven, or may be dyed or printed on the yarns before being woven, and may be attached to a back composed of linen, jute, flax, hemp, cotton, or other material either before or after being dyed or printed."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 6.—N° 986.

COLE, William.—This "invention consists in manufacturing elastic fabrics with a raised rib or pattern surface, which is

" thrown up in the form of a pile or terry surface. This pile surface, by reason of its projection above the general surface of the fabric, receives the chafing wear to which it is subject, and so protects the general surface or foundation of the fabric; hence it will be more enduring than ordinary elastic fabrics."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 7.—N° 994.

PATTERSON, John.—" Improvements in the manufacture of double fabrics." The patentee says :—" In the manufacture of double fabrics it has heretofore been customary to unite the two fabrics by means of the warp threads; now my invention consists in uniting double fabrics by the weft threads, which weft threads when cut to separate the two parts of the double fabric form the pile on two separate fabrics." " In performing my invention I alternate the weft pile threads from the upper to the under warp, and vice versa, floating them over and under two or more threads of the respective warps, and binding them with the third or next corresponding threads according to the length of pile required; each of the warps is provided with the usual binding weft. The pile weft threads form diagonal lines between the two fabrics."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1866, April 7.—N° 1004.

DAVIES, John Lacey.—This " invention relates to that part of looms termed 'temples,' and is designed for the purpose of distending the fabric and keeping it distended as it is woven without injuring the fabric by the use of points or pins as hitherto used.

" The improvements are applicable to looms for weaving most descriptions of fabrics, but especially in weaving 'horse-hair 'cloth,' or in weaving 'leno' or other light, open, or lace-like fabrics; and the improvements consist in the application and use of a shaft, around which a length of india-rubber, gutta percha, soft cord or rope, or other yielding substance is coiled or wound in a right and left handed spiral course, commencing at about the middle of the length of the shaft, and extending towards the extremities; the right and left handed spiral elevations thus formed are to be coated with glue and emery;

" sand, or other rough particles, and when dry and ready for " use the shaft or 'temple' thus formed is to be mounted in " bearings at each side of the loom, and the fabric to be distended is to be in contact with it and may pass over or under " it, so that as the fabric is wound upon the cloth beam, it causes " the shaft or temple to rotate, and becomes spread from the " centre of its width, and distended laterally by the action of the " right and left handed screw-like elevations as it passes over " them; or if preferred, the 'temple' may be driven and not " dependant upon the friction of the fabric only. When it is " necessary to 'let back' the fabric from the cloth beam, the " temple is so arranged in its bearings that it may be taken out " of contact with the fabric. In order that the fabric may be " kept distended at the proper width, and the few lost 'picks' " woven may be prevented from shrinking when the temple is " removed; a spring, screw, or weighted clip is arranged to hold " the part of the selvages liable to shrink simultaneously with " the removal of the temple, and the clip being mounted in " grooves in the framing may slide back with the fabric, though " still keeping it distended."

[Printed, 8*d*. Drawing.]

A.D. 1866, April 9.—N° 1009. (* *)

WEATHERDON, BALDWIN FULFORD.—(*A communication from Jéane Pierre Caminade.*)—" Improvements in treating lucern root " for paper making and weaving purposes, as well as in abstracting " soda salts and coloring matters therefrom."

Fibres for spinning and weaving are obtained from the roots of the lucern plant, which are crushed between rollers in order to expel the sap therefrom, then dried, and next " submitted to any " retting or macerating process in like manner to hemp and flax, " for the purpose of disintegrating heterogenous substances. " The fibrous parts thus obtained are bleached in the usual " way."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 11.—N° 1030.

WISHART, WILLIAM, and CAMERON, PETER.—" This invention has for its object to simplify and render more efficient " the apparatus used in producing loom-sewed fabrics."

"In one modification of the improved apparatus the crescent-"shaped bobbin carriers are shaped to fit and work in segmental "annular grooves or recesses formed in the front of a vertical "metal plate, which is fixed upon a frame constituting with it "what is termed the 'circle frame.' The crescent-shaped carriers "have their front surfaces flush with the front surface of the "plate, and they are kept in their places simply by the movable "rack plate or notched plate used for turning or 'circling' them "by being shifted horizontally from side to side by the weaver. "In forming the recesses for the carriers a small raised boss is "left in each as a centre for each carrier to turn upon. The "bottom edge of the plate is as usual formed into a series of "wedge-shaped points, which points occur between the carriers, "whilst the angular indentations between the points extend up "into the bosses of the recesses, making these bosses hollow, "and as it were cut through on the under side. Each carrier is "fitted with three projecting wires, by means of which the rack "plate turns it in the usual way, one of the wires being longer "than the others to receive the bobbin, and being bent to form "a guide for the thread, whilst the bobbin is prevented from "slipping round too easily by a fine wire spring fixed on the "part of the wire that carries it. The bent part of the wire "which forms the guide for the thread has the advantage of "holding the thread in a lower position than the guides hitherto "used. The construction herein-before described allows the "carriers to be got more closely together than hitherto, and it "also permits the carrying of the indentations between the "points to a greater height, so that the warp threads can be "raised higher. In some cases two or more circle frames are "used, one in front of the other, and are operated simultaneously "or at different times.

"Another improvement consists in mounting the circle frame "or frames on springs in order when carried back by the lathe "to return a little, and thereby slacken the bobbin threads.

"A further improvement consists in combining with the "apparatus a bar or bars with knives or sharp blades or points "to be raised by the weaver when required to cut portions of "the threads and form holes in the fabric, the edges of which "are afterwards bound or covered by means of the circling "bobbins.

"In a second modification the bosses in the recesses for the

" carriers are made in separate pieces with flanged portions to " hold the carriers in place, and with strips projecting upwards " to fix them by to the plate, it is however preferred to make " the bosses as herein-before described."

[Printed, 8*d*. Drawing.]

A.D. 1866, April 16.—Nº 1067.

RICHARDSON, Charles.—These improvements relate to pneumatic looms in which the shuttle is actuated by compressed air. The patentee says, " my first improvement consists in an " important modification of the pneumatic shuttle box by doing " away with the check or swell spring at the back of the shuttle " box, which necessitates the cutting of an opening to let the " spring project through the aperture into the box, and against " the side of the shuttle, the said aperture preventing the air " from acting on the shuttle, letting the air out at the back " before it has spent its whole force. I furthermore elongate " the shuttle box and also the cover or cap over the same, so as " to retain the air as long as possible that the shuttle may " receive the whole of the elastic force of the jet of air delivered " through the valve on the shuttle. I use instead of the ordinary " check block or swell spring a check spring underneath the cap " of the shuttle box projecting down on the shuttle. I use any " form of shuttle in the improved shuttle box, either the old " form of shuttle or my improved shuttle herein described. I " also use a revolving disc seating to either the conical or flat " valve.

" Secondly, instead of impinging the air as is now the case " against the conical ends of the shuttle, I cause the air to " impinge internally against surfaces, centralizing the blow or " force, economizing the air, as well as giving a more direct " action to the shuttle."

[Printed, 10*d*. Drawings.]

A.D. 1866, April 16.—Nº 1069.

NEWTON, Alfred Vincent.—(*A communication from Philo Ward Hart and Daniel Clark Tibbals.*)—(*Provisional protection only.*)—" This invention relates to the application to looms of " certain mechanism whereby when the yarn of the shuttle " breaks or gives out while the loom is in operation the shuttle

" will be ejected from the shuttle box at one side of the loom, " and its place supplied by another shuttle containing a proper " supply of thread without the necessity for stopping the loom. " The shuttle box on one end of the lay of the loom is made " with an open bottom and fitted with a trap formed of automatic " sliding plates, which trap in case of the shuttle yarn giving " out or being broken is opened as the lay strikes up by the " action of a device somewhat similar to the fork and grid of " the ordinary 'filling stop motion,' or of other suitable character, " and the shuttle then either drops out or is pushed through the " bottom of the box by means of fingers attached to the shuttle " box or lay, and which are caused to operate by a portion of " the same mechanism which opens the bottom of the shuttle " box. At the opposite side of the loom there is attached to the " breast beam cr other fixed part of the loom a shuttle box, " which may be termed the 'spare shuttle box,' also having an " open bottom and a movable trap, and in which is placed a " spare shuttle. This shuttle at the same time that the shuttle " which has been in operation is ejected, or before the lay moves " back again after such ejection, is delivered through the open " bottom of the said spare shuttle box into the shuttle box on " the corresponding end of the lay by the opening of the trap at " the bottom of the said spare shuttle box and the action of suitable " fingers; the opening of the trap at the bottom of the " spare shuttle box and the operation of its ejecting fingers " being produced by the same mechanism as, or mechanism " substantially similar to that which produces the opening of " the trap in the bottom of the shuttle box on the other end of " the lay, and the ejection of the shuttle therefrom."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 16.—Nº 1070.

BENNETT, SAMUEL.—(*Provisional protection only.*)—" This " invention consists in lubricating the peripheries of the steam " cylinders of sizing machines or tape legs for the purpose of " preventing the yarns from sticking to the cylinders, and " maintaining the pliability of the yarns." The inventor places " in contact with the cylinder to be lubricated a roller covered " with flannel, which roller is in contact with a roller revolving " in a trough containing grease or other lubricating matter. " The said trough is in connection with a chamber supplied with

" steam for keeping the lubricating matter in a fluid state, and " as the cylinder revolves it gives revolving motion to the roller " in contact with it, which roller in its turn gives motion to the " roller in the grease trough so as to enable it to give off grease " to the roller in contact with the cylinder, and thereby grease or " lubricate the cylinder as required.

" In some cases the roller in the grease trough has on its " surface a spiral projection for enabling less grease to be taken " up than with a plain roller, and when required there may be " one or more intermediate rollers between the roller in the " trough and the roller on the cylinder."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 18.—N° 1086.

BULLOUGH, William.—"Improvements in machinery for " warping, dressing, sizing, and beaming yarn."

This invention consists in conveying the yarn from two or more warp beams, which are supported by an endless belt and rollers " through the usual sizing trough and squeezing rollers, then between a pair of circular brushes, or between a pair of grooved " rollers, with or without bristles or brushes; these brushes or " grooved rollers revolve in the direction of the yarn, but faster, " in order to lay the fibres; the yarn is then taken around the " drying cylinder, which is placed above or below the level of the " yarn in order to economise space; the yarn then passes over " guide rollers and around a drum, by which the beam on which " the yarn is wound is driven at a uniform surface speed; this " beam has flanges fitting over the ends of the drum, and in " order to prevent the end yarns falling off the end of the drum" the patentee fixes needle points near the ends of the drum, or he takes "a certain number of yarns from each end of the warp " direct from the guide roller to the warp beam."

[Printed, 10*d*. Drawing.]

A.D. 1866, April 19.—N° 1103.

TURNER, Archibald.—This invention relates to machinery for preparing warps for weaving narrow fabrics, "for which pur" pose the warps are usually wound on short rollers which are " placed in bearings in the loom." "The object of the present " invention is to effect the warping operation by mechanical

" means." The roller on which the warp is to be wound is placed on a spindle driven by a pair of cone pulleys and strap, the strap is shifted on the cone pullies, in order to keep the surface speed of the warp roller always the same, by a screw actuated by a ratchet wheel and click. "The warp threads are conducted " from their bobbins through a perforated guide plate, or " through a leashing or crossing apparatus, such as that here- " after referred to, and over and under two elastic tension bars " provided with india-rubber or other springs to give the requisite " tension to the warps. From these bars the warp passes to an " eye or guide at the upper end of a vibrating double-armed " lever mounted loosely on a reciprocating bar or rod, to which a " to-and-fro motion in its guides or supports is communicated by " means of a heart wheel, cam, excentric, crank, or other suitable " contrivance, which will cause the guide rod and traversing " guide to move to and fro in front of the warp roller or beam as " the latter rotates. The warp will thus be laid or wound on to " the roller or beam in a zig zag manner with perfect regularity. " In order to ensure uniformity in guiding the warp, it is ad- " visable to keep the eye or guide at the end of the traversing " lever as close as possible to the surface of the warp roller or " beam, and always the same distance therefrom. To this end a " pressing roller mounted on a pin or stud fixed in a moveable " bar which works in guides attached to the framework is made " to bear against the surface of the warp roller, and as the dia- " meter of the latter increases this pressing roller, together with " the moveable bar to which it is connected, is forced back. A " long pin or stud also fixed in the moveable bar takes into a slot " made in the tail or lower arm of the traversing guide lever, so " that as the pressing roller and moveable bar are forced back by " the increase in the diameter of the warp roller or beam, the " long pin by acting on the tail or lower arm of the traversing " guide lever, will cause the same to turn on its axis, and thus " draw back the eye or guide at the upper end in precise propor- " tion to the increase in the diameter of the warp roller or beam." " The pressing roller is made a little longer than it is intended " to lay the warp on the roller or beam, so that it may extend " beyond and overlap the warp on the roller or beam. The periphery of the pressing roller moreover is slightly hollowed out " towards the middle, and as it bears against the surface of the " warp on the roller or beam, it nips or holds the warp securely

" and prevents it from shifting, overlapping, or being displaced " while it is being wound on to the beam. At the same time by " making the pressing roller hollow the warp will be laid on in a " slightly curved form." " In order to stop the machine when " any of the warp threads break, or any of the bobbins become " empty during the warping operation, every separate warp " thread is passed through an eye attached to the end of a " weighted rod or lever, which, while the thread is unbroken, will " be held up thereby, but immediately a thread breaks or runs " off from an empty bobbin, the weight belonging to or sup- " ported by such thread will drop, and by acting on a lever catch " bar or other analogous contrivance will throw the driving band " off the fast pulley and stop the machine."

In the "improved leashing or crossing apparatus, before " referred to," " every alternate thread of the warp is passed " through the eyes of a series of vertical needles or guides which " are attached to a rising and falling bar. The remainder of the " threads may either be passed through the eyes of a similar " arrangement of vertical needles, or simply through holes made " in a perforated plate, as above mentioned. It will now be " understood that if the needle bar with its threads be lifted up " one-half (that is, every alternate thread) of the warp will be " raised above the level of the other half, the leashing thread or " string may then be introduced between the upper and lower " set of warp threads. The needle bar with its threads is then " depressed below the stationary warp threads, so that the two " sets are crossed. The leashing thread is then introduced below " the stationary warp threads."

[Printed, 1*s.* 10*d.* Drawings.]

A.D. 1866, April 24.—N° 1155.

BURLE, Eugène.—" A new method of manufacturing woven " fabrics." The patentee proposes "to obtain in very simple " looms the means of making an infinite number of patterns or " designs, and this by means of threads which do not work, " or rather which are not previously combined either into warp or " woof, but which by the aid of supplementary healds ride at will " in a direct line to the right, to the left obliquely, and in every " direction according to the arrangements fixed upon. The " riding of the threads which are to produce the effects may take " place at will on one or several ground threads without in any

" way hindering the march of these ground or foundation threads. " Having for example a warp of one design or pattern thread, " and three ground threads, the four threads united at the sley in " a single reed, the left design or pattern thread is placed in an " ordinary heald. At the right of the four threads is the sup- " plementary heald, which, simple and without any eye or mail, " carries at the height of the pass or fulling a heald end termi- " nated by an eye or mail. If the pattern thread must remain in " its place at the left of the reed the supplementary heald does " not act, and in no way hinders its journey, nor that of the three " ground threads. If, on the contrary, the pattern thread must " pass from the left to the right, then the ordinary left heald " rises, and the supplementary heald on the contrary lowers and " forces the pattern thread to pass to the right, where it is tied " by the woof. As this movement of the pattern thread, lifted " by one heald and brought down by the other, employs a greater " length of thread than the normal position, a compensator is " placed at the back of the loom. It will be understood that the " pattern threads are mounted on a separate beam."

[Printed, 10*d.* Drawing.]

A.D. 1866, April 25.—N° 1160.

BURTON, John Watson.—"The first object of this invention " is the treatment of animal fibrous substances containing burrs " and other vegetable refuse, woollen rags, woollen or shoddy " waste, and other animal fibrous substances containing objection- " able vegetable matter or impurities, so as to render the animal " fibrous substances clean and better adapted for the manufacture " of fabrics and for other purposes." The material to be operated upon is dipped into a solution of catechine, dilute sulphuric, nitric, hydrochloric, or mimotannic acid; it is then washed in a bath of tannin, but if the material is greasy, instead of the tannin bath it is boiled in a solution of carbonate of soda. "These " operations being effected, the fibrous substance is dried by heat " and then placed in a suitable machine for removing the burrs " or other vegetable refuse." "The animal fibres are then " steeped in dilute ammonia to recover their original strength and " quality, and to remove any injurious effects arising from their " treatment with the acid solutions."

The second part of the invention consists in utilizing the seeds contained in the burrs and other vegetable refuse. For this purpose they are ground or crushed by means of any existing machine used for the like purpose, and used for food for animals. "The "seeds so ground or crushed are likewise capable of conversion "into vegetable size and stiffening by the ordinary methods."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1866, April 27.—N° 1183. (* *)

STRANG, James.—(*Provisional protection only.*)— "Improve-"ments in cop tubes and in shuttle skewers."

"By the present invention all the advantages of the taper "form" of cop tubes "are imparted to tubes which may be made "in exactly the same manner as common parallel tubes by form-"ing the tube with a slit entirely from end to end, or from one "end along a greater or less portion of the tube's length, or with "two slits, one from each end; this slitting of the tube enables "it to assume a preferable taper form when it is put on the wind-"ing spindle or on the shuttle skewer, the spindle and skewer "being shaped with a taper to distend the bottom of the cop "tube." "When the tubes are slit all their length they need "not be first formed into complete tubes to be subsequently slit, "but may be made of pieces of paper of suitable width, these "being bent or rolled into a cylindrical form, and being stiffened "as in making common tubes, whilst the paper will, of course, "be formed in lengths to be afterwards cut into short pieces "forming the cop tubes."

"The improved shuttle skewers, instead of being generally "round, or nearly round, is made narrow and flat, the narrow "edges being rounded so that the cop clutches or grips them "more than the flat sides. It is preferred to make the broad "part near the point at right angles, as seen in cross section, to "the broad part near the shank, and to apply the spring with "which the skewer is usually formed to the narrow edge near "the shank."

[Printed, 4*d.* No Drawings.]

A.D. 1866, April 28.—N° 1199.

DAVIES, John Lacey.—(*A communication from Paul Rebuschinsky and William Cheetham.*)—"The invention relates to that "part of looms for weaving wherein metal strips are substituted "as supports and guides for the warp in place of healds made

" from worsted or other yarn, and the improvements consist in " the use of metallic 'shafts' or framing for the healds, from " which small brackets project, and which are arranged so as to " support metal rods which extend the length of such 'shafts.' " These rods support short thin strips of flat steel or other suit- " able metal by passing through holes previously perforated in " the ends of the same; each particular steel strip is perforated " about midway between their supporting rods with small " polished holes or eyes through which the warp threads pass." " The chief feature of the invention being the method of mount- " ing or supporting metallic healds so that they are relieved from " any strain or tension, and are capable of moving or yielding, " either slighty vertically or laterally, so as to allow for inequalities " in the yarn."

[Printed, 8*d*. Drawing.]

A.D. 1866, May 1.—N° 1222.

LEA, Henry. — (*Provisional protection only.*) — The inventor says:—"The object of my invention is to effect an economy in " the expenditure of compressed air when used for propelling the " shuttles of looms. I make the shuttle box parallel inside, and " of such a size that it fits the shuttle closely but freely. I also " make the shuttle box of such a length that after the volume of " compressed air required for the propulsion of the shuttle has " been admitted immediately behind the said shuttle such volume " of air shall by its expansion within the box continue to accele- " rate the velocity of the shuttle, and I prefer that the shuttle " box should be of such a length that the pressure of the air " propelling the shuttle should fall to that of the external " atmosphere by the time the shuttle has left the mouth of the " shuttle box. In order to cause the shuttle to enter truly and " freely into a shuttle box so closely fitting the shuttle, I place " at the mouth of the shuttle box two guides, one of which is " fixed truly in line with one internal side of the shuttle box, and " the other guide is so hinged and pressed by a spring as, firstly, " to compel the shuttle to slide truly against the opposite fixed " guide, and therefore to enter truly into the shuttle box; secondly, " by its friction to bring the shuttle to rest in its proper position " in the shuttle box; and, thirdly, to prevent the rebound of the " shuttle from the box. I withdraw the hinged guide by a cam

" at the proper time, so as to permit the free exit of the shuttle " when propelled by the compressed air. I work the valve which " admits the air to the shuttle box in the following manner:"— " I provide a revolving cam upon or near the shuttle box, which " cam compresses a spring, and this spring upon being released " by the cam strikes through the medium of a small hammer or " otherwise the end of the valve spindle, thereby opening the " valve for an instant against the pressure of the confined air and " admitting the required volume of the compressed air to the " shuttle box. The volume of air may be varied by altering the " set or strength of the spring by a set screw. I also provide a " small valve in the side or top or bottom of the shuttle box and " near its closed end, and I cause the said valve to open at the " proper moment, so as to prevent the air within the shuttle box " being an obstacle to the ingress of the shuttle when driven " from the opposite box, and I cause the valve to reclose air-tight " during the egress of the shuttle. The cam for effecting this is " fixed upon the shaft which carries the two cams previously " referred to."

[Printed, 4*d*. No Drawings.]

A.D. 1866, May 2.—N° 1237.

MOORE, HENRY, SAGAR, THOMAS, KEIGHLEY, GEORGE, and RICHMOND, THOMAS. — " Improvements in looms for " weaving." The first part of the invention consists in " dispensing or partially dispensing with the healds or heddles " for forming the shed. When the healds or heddles are entirely " dispensed with " " the reed or reeds are constructed with an " eye or eyes in the dents, so that when the reed or reeds, through " the eyes of which the warp threads are passed, are raised or " lowered by means of a cam or cams, or tappet or tappets, or by " the usual treadles or other known means, a portion of the warp " threads are raised or lowered, whilst the other remain the " contrary way, either down or up, to form the shed. The latter " portion of the warp threads are actuated by a rod or rods across " the warp worked by a cam or cams, or tappet or tappets, lever " or levers, to form the other part of the shed." When the healds or heddles are partially dispensed with the patentees " use a reed " of the ordinary construction, and pass one half of the warp " threads through the eyes of the healds or heddles, and thereby

" form one half of the shed by raising or lowering such healds or " heddles in the usual way, and form the other half by passing " the warp threads between, under, or over a rod or rods placed " across the warp, such rod or rods being actuated by a cam or " cams, tappet or tappets, lever or levers." The patentees " work " the reciprocating back bearer for relieving the warp during the " forming of the shed from the tappet or tappets, cam or cams, " that actuate the reed or reeds, rod or rods."

The object of the second part of the invention " is to strike up " the weft after two or more picks are made, and after two or more " motions of the healds or other substitute for the healds, instead " of after each pick, as is usually done."

[Printed, 8*d.* Drawing.]

A.D. 1866, May 2.—N° 1241.

SHORROCK, James, and SHORROCK, George. — " Improvements in pickers for looms." The patentees say :—" This " invention relates to pickers used in looms for weaving, and " constructed of buffalo hide; heretofore the practice has been to " construct pickers of such length that when the two sides of the " lower part were cut away the centre part remaining formed a " ' foot' or tongue, which was received by and worked in the slot " or groove of the shuttle box.

" Our improvements consist in constructing pickers of buffalo " hide and of the ordinary form, but instead of cutting away the " sides of the lower part we attach a separate piece of buffalo " hide (or other material or metal) forming a foot or tongue, and " secure such piece to the picker by screws, pins, or rivets."

[Printed, 8*d.* Drawing.]

A.D. 1866, May 3.—N° 1259. (* *)

BOUSFIELD, George Tomlinson.—(*A communication from Stanislas Vigoureux.*)—(*Provisional protection only.*)—" Improve- " ments in the manufacture of yarns or threads and woven fabrics " from wool or wool combined with other materials."

A compound thread or yarn of mixed colours is produced by combining a yarn of carded material with a yarn of combed material, instead of by combining two yarns of carded or two of combed material, as generally practised. The compound thread *is* " composed essentially of two sorts of fibrous material, the one

" long, which gives strength, the other short, to correct the veins " which the first alone would give," and the two materials " are " united together by a process of double spinning," carded yarn of wool, or of wool mixed with cotton or waste silk, for example, being placed upon bobbins in the "rack" of a machine in which combed wool or other material is being spun, and being "con- " ducted upon the drawing roller" of the machine in such manner as to become united with the latter. Any description of spinning machine may be used, but it is stated that a machine " in which the yarn or thread is exposed to a rolling or rubbing " action" is preferred, such action causing the materials to unite intimately, and producing a yarn or thread with a glacè surface.

Woollen yarn or thread thus prepared is to be used in the manufacture of carded woollen fabrics known as poplins to form the cord which is produced by the weft, such cord then consisting of one such thread in place of the two ordinarily used to produce each cord; and such woollen yarn or thread is also to be used for the warps of the fabrics known as reps, one such thread here also sufficing in place of the two ordinarily employed to produce a cord.

[Printed, 4*d*. No Drawings.]

A.D. 1866, May 4.—N° 1268.

DARRAGH, Richard.—(*Provisional protection only.*)—" Im- " provements in shuttles." " This invention consists in using a " fixed in lieu of a moveable spindle for carrying the pirn in the " shuttle, and in retaining the pirn in its place while the thread " or yarn is passing off by means of a clip or catch attached to or " in connection with a spring."

[Printed, 4*d*. No Drawings.]

A.D. 1866, May 4.—N° 1269.

BLEZARD, Thomas, **BLEZARD**, James, the younger, **BLEZARD**, John, and **BLEZARD**, Norman.—" Improvements in " self-acting temples for looms for weaving." The patentees " place a bar or rod made of wrought iron or other suitable " metal or material in close contact with the top surface of the " cloth or fabric between the temple rollers and the reed, by " which means the cloth or fabric is kept steady and prevented

" from rising and falling, whereby the shuttle acts more certainly " from the fact of the cloth and warp being held nearly in a rigid " position."

[Printed, 10*d*. Drawing.]

A.D. 1866, May 10.—N° 1335.

SOWDEN, DAVID, and STEPHENSON, REUBEN CALVERT.— " Improvements in looms for weaving." "This invention relates " to means of preventing breakage of the warp when the shuttle " stops in the shed, or does not pass properly into the box; and " heretofore means have been employed for this purpose known " as the 'stop-rod motion.'" "Another means is also employed " for this purpose well known as the 'loose-reed motion.'" The present improvements consist "in combining and adapting or " applying and arranging these two motions to act in concert, so " that if the former fails to act the latter will act and react upon " the former, and thus cause it to stop the loom immediately."

The patentees "apply to or construct each loom with both stop " rod and loose-reed motions," and they "connect the two " motions by a lever or levers, so that when a shuttle stops in the " shed, and as the loose reed is pushed out of place thereby (as " heretofore), it operates upon the lever or levers, which depress " the catches of the stop rod into the notches on the framing, and " thus stop the further action of the loom."

[Printed, 8*d*. Drawing.]

A.D. 1866, May 12.—N° 1362.

HARRISON, WILLIAM, HARRISON, JOHN, and HARRISON, HENRY.—" This invention is particularly applicable to the manu- " facture of copper, tinned iron, and other sheet-metal cylinders " used in sizing, dressing, and drying machines, but it may be " applied to other purposes; and it consists of an arrangement " of self-acting machinery for straightening and rendering true " the surfaces of such cylinders or other articles.

" In performing this invention the article to be operated upon " is placed on a cast-iron roller, which is turned slowly round " alternately in contrary directions by a catch taking into a toothed " wheel or other suitable mechanism. Above this roller is a series " of stampers and hammers, which are raised in succession by " cams placed spirally on a shaft. These stampers or hammers

" drop by their gravity, and the force of the blow can be regu-
" lated by varying the position of the cam shaft or by moving the
" studs against which the cams act. When the cylinder or other
" article has been hammered sufficiently in one position, it is
" moved laterally by a screw or otherwise to bring the other
" portions of its surface under the stampers or hammers."

[Printed, 10*d.* Drawing.]

A.D. 1866, May 19.—N° 1425.

RAMSDEN, JOHN CARTER.—(*Provisional protection only.*)—
" Improvements in the manufacture of reeds for weaving and
" other purposes." The inventor says:—"According to my in-
" tion I make a reed sufficiently firm to answer all practical
" purposes and yet with a degree of elasticity without using
" india-rubber or any similar elastic substance. The means by
" which I accomplish this is as follows:—I use balks or ribs of
" thin soft sheet metal or other material; each rib is shaped to a
" semicircular or trough-like form; the dents are at each end
" enclosed between two such ribs, and the ribs are lapped with
" either dry band or band run through some composition to give
" it a slight stickiness. When the reed is made I place it under
" a press and press it sufficiently to cause the dents to partly
" insert themselves into the thin edges of the metal ribs, thereby
" they are held sufficiently firm and yet retain all their elasticity;
" I prefer to make the ribs of sheet zinc. In making ribs where
" it is not advisable to apply so much pressure; and if I think
" the reed is not sufficiently firm, I then pour down inside the
" ribs a composition which will set hard without attaching itself
" to the dents. I have found a mixture of glue and finely-
" powdered chalk to answer very well, first as a precaution
" passing a greasy sponge through the ribs."

[Printed, 4*d.* No Drawings.]

A.D. 1866, May 21.—N° 1429.

GADD, WILLIAM, and MOORE, JOHN.—"Improvements in
" looms for weaving." "The object of the invention is to obtain
" economy of space and various facilities in weaving. Each loom
" is by preference, arranged for the production of two distinct
" fabrics in an inclined direction, one on each side or face of the
" loom. The warp for each fabric is supplied from a separate

" beam; one of these beams is placed at the lower part of one " face of the loom and the other at the lower part of the " other face thereof, from thence each warp passes over a vibrator " or rocking bar and upwards in a diagonal direction, or inclined " inwards towards the centre of the loom through the reed of its " batten, and thence each fabric produced proceeds in a corresponding diagonal or inclined direction over a work bar to a " work roller at the upper part of the loom."

" The inclination of each reed and of that part of the batten " thereof commonly called the race being in opposite directions " they form a trough, which greatly facilitates the retention of " the shuttle in its passage from one end of the race to the other. " Each batten is connected to arms or swords turning on axes at " the opposite side or face of the loom, the swords of the two " battens thus cross each other." " Motion is given to the battens " by connecting rods from cranks or by other suitable means, the " shafts for which, with the picking and other motions for each " fabric, are capable of being simultaneously driven, and are " capable of being thrown into or out of gear separately, so that " one fabric may be produced at a time, or the two fabrics may be " woven at the same or at different speeds; to enable this to be " done the lathe swords are formed curvilinear." "The picker " arms and healds work in corresponding or similarly inclined " or diagonal directions."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1866, May 22.—N° 1436.

McLINTOCK, JAMES, and JAGGER, JOHN.—(*Provisional protection only.*)—" Improvements in heddles or healds for " weaving."

This invention "consists essentially in knitting heddles or " healds from copper, brass, or other metal wire in lieu of from " twine or other spun fibrous material. The wire composing the " heald is also knitted or twisted over stout heading wires, which " are fixed into the wooden bars or shafts of the healds the object " being to keep the eyes in their relative positions, and strong " supports or struts should be introduced between the wooden " bars or shafts near their opposite extremities in order to maintain the knitted wires composing the healds in a proper state " of tension." The durability of the heddles is thus increased, and being composed of smooth wire they are less liable to injure the warp by friction than the ordinary heddles.

[Printed, 4*d*. No Drawings.]

A.D. 1866, May 24.—N° 1455.

CUNNINGHAM, John, and CUNNINGHAM, Robert.—(*Provisional protection only.*)—"This invention has for its " objects to simplify and cheapen the weaving of certain kinds of " ornamental fabrics.

" One part of the invention relates more particularly to single-" faced fabrics of or similar to the 'Paisley shawl' class and " having a 'plain cloth' texture, and it admits of the production " of a fabric closely resembling ordinary fabrics of this class woven " with a full warp although it requires only three-fourths of the " warps, one-half of the tie, and one-half of the harness ordinarily " employed in producing such fabrics.

" In carrying out this part of the invention single-lift jacquard " apparatus may be used and the cards may be perforated in the " ordinary way. Each mail has three warp threads passed " through it, and these are equivalent to four threads which in " the ordinary system occupy two mails. Of the three threads " in each mail the middle one is by preference stouter than the " other two, and whilst these two threads are alternately pressed " by a pair of heddle leaves in the ordinary way so as to be thrown " alternately to the surface the thread not thrown to the surface " being raised when required for the ground shot the middle " thread remains in the body of the fabric, being held between " the ground shots and the face shots; or the three threads may " be raised one after the other for the ground shots by three leaves " of heddles."

" A second part of the invention relates more particularly to " two-faced or double fabrics, of or similar to the 'Paisley shawl " 'class,' and having a 'plain cloth' texture.

" In carrying out this part of the invention only two leaves of " heddles or healds are used in place of the four hitherto employed " in weaving the same class of fabrics. The heddles employed " consist of upper and lower loops simply linked together and " are known as 'clefted' heddles. Instead of the threads to be " acted upon by the respective heddles being entered through " the upper loops only or through the lower loops only the " threads for the under side are entered through the lower loops

" and the threads for the upper side are entered through the " upper loops of the same heddles. In entering the threads it is " preferred to enter the two under threads from, say, the first " mail through the first lower loops of the two heddle leaves " which may be distinguished as first and second leaves; the two " upper threads from the second mail are entered one through " the first upper loop of the second heddle leaf and the other " through the second upper loop of the first heddle leaf; the " second pair of lower threads from the third mail are entered " through the two second lower heddle loops, whilst the second " pair of upper threads from the fourth mail are entered through " the second and third upper loops of the second and first heddles " respectively, and so on throughout."

"A third part of the invention relates to the production of " 'middles' or 'centres' on double fabrics of the kind already " referred to."

The inventors propose "flushing the wefts of the middles on " either of the outer sides of the fabric, bringing them out at " points a little beyond where they are woven in to form the " middles. These flushed wefts are afterwards cut off as closely " as possible to their points of emergence and the ends shrink " out of sight within the fabric."

[Printed, 4*d*. No Drawings.]

A.D. 1866, May 30.—N° 1506.

SCHOFIELD, Hugh.—"Improvements in weft forks and in the " tools employed in the manufacture thereof." The first part of the invention "consists in the application of dies or swages fitted " to or in connection with the ordinary or any other forging " machine, one part of the said dies or swages being of the shape " required for rough drawing the iron into blanks of the proper " size and thickness to make a weft fork and for leaving the " metal where the prongs join the socket V-shaped or with a " partly circular swell; other dies or swages having other parts " of the shape required for forging the prong plate or web to the " requisite taper and for finishing the tail end of the fork to the " proper breadth and thickness.

" Secondly, in the application of taper cutters which are moved " up and down and partly round for cutting the prongs of the " weft fork. When the prongs have been formed by the cutters

" they are acted on by a set of dies or swages acting simultaneously on all the prongs to bring them to the proper shape " and taper.

" Thirdly, in the application of an improved revolving cutting " tool for finishing the centre part of the weft fork, whereby the " root of the prongs and tail piece are left semicircular and consequently stronger than heretofore."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1866, May 31.—N° 1527. (* *)

BOUSFIELD, George Tomlinson.—(*A communication from Stanilas Vigoureux.*) — " Improvements in preparing fibrous " materials for spinning and weaving."

This invention relates to the production of " particoloured or " variegated " thread or yarn. Bobbins of threads of various colors or materials, " according to the effect it is desired to " produce," are placed in a suitable frame. The threads then pass through guides and between a pair of rollers, whence they proceed to other rollers; passing also between these other rollers from other bobbins are slivers of untwisted fibre of any desired color or material. The threads from the first bobbins thus pass along with the slivers through the second rollers; these rollers revolve quicker than the first, and the result is that the threads from the first bobbins are broken into short lengths, which become combined and travel on with the slivers, the latter being afterwards drawn and spun in the usual manner, and the short portions of broken thread forming " distinct streaks " in the yarn, and " corresponding lines " in the fabrics made from such yarn. " Blades or other instruments may be employed in place of " drawing rollers for dividing off the portions of thread to be " attached to the sliver."

[Printed, 6*d.* Drawing.]

A.D. 1866, June 6.—N° 1558.

HOPWOOD, James.—" This invention relates particularly to " that portion of the loom for weaving termed the 'temple,' that " is, the apparatus employed to distend the cloth between the " selvages as it is manufactured, and the improvements consist in " allowing such temple to be loose and to vibrate easily on the "temple rod with the movement of the cloth in contradistinction "to making it a fixture upon such rod as hitherto.

"In order to effect this object the arms of the ordinary temple "are arranged to fit loosely upon the temple rod, thereby "allowing the temple to move freely with the cloth, its position "for keeping the cloth distended being effected by means of a "sliding finger or temple holder which bears against the inner "side of the temple, a stud upon such temple holder being pro"vided so as to form the bearing or frictional surface for the "same; this sliding finger or holder is capable of being adjusted "and secured upon the temple rod so as to retain the temples at "any desired distance apart, according to the width of cloth "under manufacture; a rod capable of being elongated extends "from temple to temple across the cloth, thereby causing a better "face or cover to be given to the same during manufacture."

[Printed, 8*d*. Drawing.]

A.D. 1866, June 14.—Nº 1613.

HARRISON, Joseph John, and **HARRISON**, Edward.—"Certain improvements in looms for weaving." The first part of this invention relates "to that portion of the loom called the "check motion, and is designed for the purpose of effectually "retarding the shuttle when entering the shuttle box." "To the "back board of the shuttle box a bracket is secured, which forms "the fulcrum of a flat horizontal lever at a convenient distance; "on this lever, between the fulcrum and the end, an adjustable "vertical rod or finger is secured; the top of this finger forms "the support for a disc or circular swell, which is caused to pro"trude through an aperture in the back of the shuttle box, so "that its periphery in the box will present a surface that shall "exert a rotary or revolving pressure against the side of the "shuttle as it enters the box; this pressure is obtained by the "spring of the stop rod through the medium of a lever secured "to such rod, the end of which forcibly bears against the opposite "end from the fulcrum of the aforesaid horizontal lever."

Secondly, the invention relates to the formation of the temple, "the temple roller is made perfectly cylindrical to about half its "length, at which point it has a gradually increasing diameter, "cone-like, for the remainder of its length in contradistinction to "forming such a temple cylindrically as hitherto; the temple, "when in its place, is arranged to have its conical portion out-

"ward, and placed also at a slight angle to the reed, the combined "effect of which upon the cloth is to give a more perfect and "distended extension across the cloth."

[Printed, 8*d*. Drawing.]

A.D. 1866, June 16.—N° 1630.

ROBERTSON, WILLIAM, and ORCHAR, JAMES GUTHRIE.—This invention relates "to the arrangement of certain parts of "looms for weaving known as the 'uptake' mechanism, and the "peculiar feature in it consists in so combining the parts that one "and the same mechanical system is rendered capable of discharging its functions in a two-fold manner, so that either what "is known as the 'drag uptake' or positive 'uptake' can be "brought into action at the will of the attendant whenever either "one or the other mode of winding on the cloth as it is woven "may be required.

"Under one modification of this invention the stud on which "the ratchet and pinion ordinarily employed in 'drag uptake' "mechanism (instead of being placed close enough to the cloth "beam, so that the uptake pinion shall gear directly into the "spur wheel on the cloth beam), is in the present arrangement "moved further from the cloth beam, and a second toothed wheel "constantly in gear with the wheel on the beam is placed so as to "revolve upon another stud; from this stud as a centre a segmental "slot is formed in the framing of the loom, and a stud capable of "being adjusted to any desired position therein is provided for "receiving an intervening wheel actuated by the pinion driven by "the ratchet as the latter is rotated by the pall of the uptake "mechanism. It is evident from the foregoing description that "the arrangement admits of a set of change pinions being used "on the stud by which the ratchet wheel is carried, and therefore "the rate of taking up the cloth when working the positive uptake "will vary and depend entirely upon the relation between the "number of teeth on the pinion and the number of teeth in the "wheel on the cloth beam. It will be understood that change "wheels or pinions are only required when the 'positive uptake' "is being worked. While in working the 'drag uptake' the "smallest pinion that can conveniently be applied is put on the "stud by which the ratchet wheel is carried, and no change pinions "are required. When it is desired to produce the 'positive up-"'take' the stud in the spanner on the rocking shaft is adjusted

" to give the necessary movement to the lever carrying the uptake " pall, so that the pall takes into one or more teeth of the ratchet " as may be required for each vibration of the rocking shaft " spanner, and the spring used with the 'drag uptake' is tightened " to cause the lower end of the lever to remain in contact with the " stud on the spanner during the whole period of its vibration, in " which case the amount of uptake is governed, firstly, by the " positive rate of motion communicated to the ratchet wheel, and, " secondly, by the amount of motion transmitted to the cloth " beam, which of itself depends, as herein-before described, on " the relation between the number of teeth in the driving pinion " and driven wheel. When, however, the 'drag uptake' is neces- " sary the stud in the spanner on the rocking shaft is adjusted to " give a greater amount of motion to the lever carrying the uptake " pall than is necessary to be taken advantage of, and the spring " which causes the lower end of the lever to follow the stud in the " spanner is released and adjusted, so that the lever does not " remain in contact with the stud over the whole vibration of the " spanner, but only to such an extent as the wefting of the cloth " requires, in which case the amount of uptake is regulated by " the adjustment of the spring which actuates the lever and " uptake pall. In either case the ratchet wheel is held from " recoiling back by means of retaining catches or palls."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1866, June 25.—N° 1685.

HEMINGWAY, Edward.—(*Provisional protection only*).— " This invention consists, firstly, in constructing and arranging " looms, to be driven by power, for weaving Dutch carpets in " such manner that two beats up or two strokes of the lathe or " batten will be given at each pick of weft."

Secondly, by means of the first part of the invention and the employment of wide looms, the inventor is "enabled to weave " such carpets in wider widths and of better quality than has " heretofore been produced."

[Printed, 4*d*. No Drawings.]

A.D. 1866, July 2.—N° 1761. (* *)

STAUFEN, Werner.—This invention relates to the treatment of the plants known as the Attalea funifera, the Leopoldinia piassava, the caryota urens, the agava Americana, the arenga saccharifera, the cocos nucifera, and the Tillandsia usneoides, in such manner as to obtain from them fibres suitable for textile and other purposes. The plants, "in the state as they are imported," are first boiled in an alkaline solution for such a length of time as may be necessary to remove the resinous, gummy, woody, or other extraneous matters adhering to the fibres, the latter being then placed in a bath containing a mordant preparatory to dyeing them during which process there is mixed with the dyeing solution "a "certain proportion of soapy matter," viz., "from one to four "pounds of oil soap in the solution for every hundred pounds of "material to be dyed." After dyeing, the fibres are dried by suitable means, and when opened, combed, straightened, and polished by suitable machinery, "as well understood in flax "dressing and other treatment of fibrous matters," the fibres being ultimately "separated, sorted, and selected for the purpose "required." Both the finer and the coarser fibres are suitable for rope yarn, for "weaving," for fishing lines, the covering of telegraph cables, as a substitute for human hair, and for other purposes.

The Specification of a previous invention, No. 1279, A.D. 1862, is alluded to.

[Printed, 4*d*. No Drawings.]

A.D. 1866, July 4.—N° 1772.

McALLUM, William.—"This invention has for its essential "object the production of those classes of wire cloths (known in "the trade under the title or designation of 'machine wires') "capable of wearing much longer than hitherto, that is to say, "they are by means of this invention rendered more durable "than heretofore.

"In carrying this invention into practice the wire used as the "warp is hardened, in place of being annealed as heretofore, it "having been found that the cloth so made is capable of resisting "more wear and tear, besides generally answering better for the "purposes to which it is applied. The wires that are used for "the weft are, however, annealed so that the weaving action may "be thereby facilitated."

[Printed, 6*d*. Drawing.]

A.D. 1866, July 4.—N° 1774.

CLEGG, Joseph, and SMITH, John.—"Improvements in the "manufacture of ribbed pile fabrics." "In manufacturing

" ribbed pile fabrics it is very desirable to obtain a well covered " surface, and to prevent the foundation or back of the cloth " being exposed between the cords when the pile is cut and the " fabric is finished." In order to produce a fabric possessing these properties, the patentees " weave in an ordinary loom a " fabric, the back or foundation of which is ribbed in the manner " known to the trade as the royal rib, and the face is produced by " floating the weft threads over five or any other convenient " number of warp threads, according to the size of the cord " required to be produced. This improved fabric when woven is " cut in the same manner as the fabrics known as cords or fustians, " and then dyed and finished as usual."

[Printed, 8*d.* Drawing.]

A.D. 1866, July 4.—N° 1775.

SAGAR, Thomas, and RICHMOND, Thomas.—The patentees say:—" Our invention consists in an improved 'letting-off motion' " for looms in weaving. Our improved letting-off motion is " similar to the escapement movement of a clock, with the exception that the back detent must be loose or free to work backwards as well as forwards, but it is prevented from working " beyond a given point forwards by a stop; the front detent may " be either the same or fixed. Upon the yarn beam, or at the " end thereof we place a ratchet wheel; the escapement movement we fix upon the vibrating or shedding warp bearer, and " in working when the shed is opened for the passage of the " shuttle the tension put upon the warp causes the shedding " bearer and the escapement movement to vibrate the back " detent, the latter holds the ratchet wheel, but still allows it to " oscillate and adjust itself to the requirements of the shed.

" The operation of letting off the yarn is effected as follows:— " As the cloth is being continuously wound up it increases the " tension on the yarn, and depresses the shedding bearer or other " substitute, and carries the front detent of the escapement movement down into the ratchet wheel, and at the same time lifts " the back detent out of the ratchet wheel and allows the wheel " to move forwards a tooth, and give out a corresponding " quantity of yarn. The ratchet wheel is now held by the front " detent, but at the next revolution of the crank shaft the front " detent is lifted out of the ratchet wheel by the ordinary shedding

" bearer, cam, or other equivalent, when the back detent descends " into the ratchet wheel and holds the beam until more yarn is " wanted, the whole operation having moved the ratchet wheel " one tooth forward. The front detent is only brought into " contact with the ratchet wheel when the yarn is let off. The " shedding lever which comes against the cam only does so when " the front detent is depressed into the ratchet wheel, as it is not " required to act except at that time. Attached to the shedding " bearer we apply a weight or spring for the purpose of withdrawing the shedding bearer lever from the cam and giving the " required tension to the warp. It will be seen that the yarn " beam is at perfect liberty to move backwards at all times " excepting when the front detent is depressed into the ratchet " wheel."

[Printed, 8*d*. Drawing.]

A.D. 1866, July 6.—Nº 1790.

HEPTONSTALL, Charles.—This invention relates to looms for weaving stays and similar uneven fabrics. The shedding of the warps is effected by jacquard apparatus. "The harness " threads depend from vertical wires hooked at their upper ends, " and acted upon by a series of transverse horizontal lifting bars. " These lifting bars have hooks jointed to their ends, to be acted " upon by upper lifting bars disposed at right angles to the " lower transverse bars, and the upper bars are made to reciprocate vertically by links and levers connecting them to a crank " or eccentric pin on the crank shaft of the loom. There are two " jacquard barrels, one at the side acting on transverse horizontal " needles, to determine which of the lower lifting bars shall be " lifted at each stroke by the upper lifting bars, and the other " at the back or front, and acting on horizontal needles parallel " to the warps, to determine which of the vertical hooked wires " shall be lifted by the lower lifting bars. The barrel at the side " may be termed the shed barrel, as it determines the kind of " shed, and consequently the kind or texture of the fabric produced." "The other barrel is for producing the uneven gusset-" like or bulging parts of the fabric, and may be termed the " gusset barrel. It acts negatively, that is, by throwing off some " of the vertical hooked wires, and thus causing the formation " of sheds by the shed barrel to be confined to the parts to be " bulged, and when such sheds are formed, the weft instead of

" being interwoven completely across the web, is interwoven only " at the parts shed, and thus forms the required excess of cloth " at those parts."

"The most important of the present improvements relate to " the taking-up details." "The taking-up is effected by means " of two series of grooved rollers, situated one below and the " other above the cloth close to the fell. Each series of rollers " consists of a number of short rollers or sections arranged " loosely on one spindle, so that each section is free to turn " independently of its neighbors. The two spindles of the " rollers are held in brackets cast on or bolted to the breast beam. " The upper rollers are by preference smaller than the lower " ones, and the upper ones serve simply to hold down the fabric " upon the lower ones, whilst the latter are driven by means of " levers and pawls." "The pawl levers are centred on the spindle " of the lower grooved rollers, and they project downwards, " having hooks jointed to their lower ends. The hooks are " severally connected by cords to the vertical hooked wires of the " jacquard apparatus, so that they are raised when and only when " the corresponding parts of the warps are being shed, and cloth " is being formed at corresponding parts." "To admit of the " unequal take-up of the warps they are drawn off a number of " separate bobbins, as is well understood. A frictional drag " appliance is adapted to each bobbin, in order that the several " sections of the warps may each have the proper tension. Each " bobbin is placed loosely on a spindle between two smooth " plates, a fixed one and a movable one. The movable plate has " an arm fixed to it, which is weighted whilst a blade spring is " applied externally with a nut that can be screwed on the spindle " in order to adjust the nip of the plates on the bobbin. As the " warps are drawn off the bobbin the weighted plate arm rises up " with increasing leverage until it overcomes the friction of the " plates, when it descends, but without relaxing the frictional " drag on the warps, and the tension of these is thereby kept as " nearly uniform as possible."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1866, July 6.—N° 1791.

MONNIER, Jean, D'HONDT, Charles, and MEURANT, Joseph.—(*Provisional protection only.*)—" This invention consists " in altering the machinery of silk and other looms, and con-

“ structing them in imitation of the jacquard loom in order to
“ produce all tissues of a high class, or otherwise by machinery
“ instead of by hand. This machinery by means of the treadle
“ being adjusted to looms of two and six boxes can make tissues
“ with materials of warp and woof varied from 2 to 200 stripes
“ or threads.”

An excentric is placed upon a shaft outside the loom, working
the governing treadle up and down. “This governing treadle
“ has a piece of pass rope maintained by a support applied outside
“ the frame of the loom, as also a second one attached to
“ the first in order to guide the movement of the pass rope.
“ There is also a tringle or shank pivotted on the treadle moving
“ the cylinder for the formation of the design.” A support is
fixed “ beneath the treadle sustaining the cylinder for forming the
“ design of the tissue when the woof is about to break.” “ There
“ are also some wooden pieces pierced replacing the cartoon and
“ forming the design, to which are attached hooks, also of wood,
“ which are placed according to the design it is desired to make.”
A support is attached to the frame of the loom, “which sustains
“ the play of the tumbrils or peddles to the number of 14, with
“ a hook moving to each governed by the wooden pieces hereinbefore
“ mentioned. These hooks governed by the pegs attach
“ themselves to the pass rope of the governing treadle, which is
“ raised by the movement of the excentric and effects the fall of
“ the tumbrils and sheet of tissue. The hooks which are not
“ taken up by the pegs or nuts are let down by an elastic movement
“ which raises the sheet of tissue.” There is a “ square
“ band with a pass rope affixed to the staff of the stilts, which
“ sustains all the play of the tumbrils whilst the cylinder makes
“ its movement; there are two treadles placed inside the loom,
“ and which in working move all the tumbrils which serve to
“ make the cloth, and are governed by an excentric.”

[Printed, 8*d*. Drawing.]

A.D. 1866, July 9.—N° 1799.

IVERS, Thomas, and HADDOCK, Jesse.—“ Improvements in
“ the construction of shuttle tongues.” This invention “ consists
“ in so connecting the spring to the tongue or skewer that an
“ uniform pressure is obtained throughout the entire length of
“ the ‘cop.’” In carrying out the invention, “ instead of fitting
“ the end of the spring into a horizontal hole in the head or

" tumbler of the tongue, which hole is in a line with the skewer," the patentees "fit it into a diagonal hole in the top of the head " or tumbler; so that when the cop is on the action of the spring " is distributed evenly on the inside of the cop instead of in the " centre only as heretofore.

"Another mode of construction consists in the application of " an additional spring acting on the end of the present spring, " by which the cop is held on the tongue."

[Printed, 8*d*. Drawing.]

A.D. 1866, July 18.—N° 1870.

MACINTOSH, John, and BOGGETT, William.—Improvements in manufacturing elastic fabrics. The patentees say:— " The object of our invention is to give a coating of metal to " elastic substances without destroying their elasticity. With " this intent we take india-rubber, or a compound of india-" rubber and paraffin or stearic acid, in small tubes or strips, " which in the first place we cover with cotton or other fibrous " materials dyed by preference of the same color as the metal " employed as a protection to the elastic materials, and then " cover it with metal wire made into a thread, as when employed " in making gold lace, &c., by winding it on spirally with a " covering machine, or braiding it, which we prefer, by a braiding " machine. The tubes or strips must be kept in a moderate state " of tension by a weight or other suitable means whilst being " covered, in order that they may retain the proper degree of " elasticity when finished. The fabric so produced may then be " plaited or sewn together, to increase their width, or the strips " or tubes may, in place of being covered in the manner described " be woven with the wire thread similar to elastic webbing, by " using one as the warp and the other as the weft. To prevent " oxidation of the metal we use a transparent varnish, preferring " collodion or copal."

[Printed, 4*d*. No Drawings.]

A.D. 1866, July 23.—N° 1911. (* *)

ANDREWS, Thomas.—(*Letters Patent void for want of Final Specification.*)—" Improvements in machines for winding or " warping and drying yarns."

In place of drying "wet spun" yarn on either the "mahogany " spinning bobbins" or the "tin spools" ordinarily used, the yarn is wound in a wet state from the bobbins of the spinning machine on to spools, which are then placed at once in the creel of the warping machine, the yarn, while passing to the beam of that machine, proceeding over the surface of a heated cylinder, placed between the creel and the measuring rollers of such machine, the heated roller being driven at the same speed as the yarn, which prevents any injurious strain from being thrown upon the latter.

Another part of the invention consists in the application of a brush or brushes between the "falling rods" and the front reed of the warping machine, under or between which the yarn passes, such brush or brushes being so mounted as to be removed out of contact with the yarn by the stoppage of the machine.

[Printed, 4*d*. No Drawings.]

A.D. 1866, July 25.—N° 1928. (* *)

STRANG, James.—"Improvements in tubes and skewers for "cops."

The first part of this invention consists in forming paper cop tubes "with a single slit from end to end, or with one or more "slits from one end, and extending more or less along the tube," the patentee stating that "this slitting of the tube enables it to "assume the preferable taper form when it is put on a spindle or "skewer." He also states that when tubes are "slit all their "length" they need not be first formed into complete tubes to be subsequently slit, but may be made of pieces of paper of suitable width, these being bent or rolled into the requisite form.

Another part of the invention consists in forming skewers for cops "narrow and flat," instead of being "round or nearly "round" as usual, "the narrow edges being rounded so that "the cop catches or grips them more than the flat sides," the patentee stating that he prefers to have "the broad part near the "point" at right angles with "the broad part near the shank." This part of the invention is described by reference to skewers furnished with springs, and under different modifications, in one of which the skewer is furnished with two springs consisting of narrow externally rounded strips "fixed to the middle part at the "point, and bent to form the broad part of the skewer near the "point, whilst the other ends are bent so as to incline inwards, "and have a little play in an opening or openings cut for them "in the shank," while in another modification the springs are formed of a "single strip," which is "passed through a hole "drilled transversely near the shank, the ends being then bent "up and soldered or welded to the point of the skewer." In another modification the inner or bottom ends of the springs are bent outwards, "so as to be gripped by the bottom of the cop, "and be thereby distended near the point, and to assist in "distending the bottom of the cop, or to distend it without "assistance from the rigid part of the skewer;" and in another modification the springs are made longer than usual, so as to enter the holding socket of a reeling or winding machine, "when "the consequent compression will cause the parts near the points "to be distended, and so hold the cop more securely," the lower ends of the springs being either soldered or welded to the skewer or left free. The three first modifications are more particularly applicable to skewers for shuttles.

[Printed, 8*d*. Drawing.]

A.D. 1866, July 25.—Nº 1929.

BOEDDINGHAUS, Julius.—"The improvements relate principally to the production of fancy or figure weaving by the use of "ribbon shuttles, commonly called 'swivels,' for the laying in of "weft to the fancy or figure portions of the fabric, whilst the "ground or body of the fabric is produced by ordinary weaving. "In carrying out these improvements the frame carrying the "small shuttles or 'swivels' is suspended upon the batten by "rods connected to arms from an axis, which is provided with "another arm to which one of the cords of the jacquard or pattern "surface is connected, so that a pull on this cord will draw the "swivel frame down into the position for weaving by the swivels, "whilst a spring or weight takes it back again. The rack for "giving motion to the 'swivels' is connected to one end of a "rod, the other end of which is attached to a crank pin from an "axis, upon which is applied a disc and studs capable of being "taken into by the teeth of a rack, which by intermediate levers "and connecting rods is actuated by a lever arm with a slotted "opening in it, by which it receives motion from a crank on "the crank axis. A spring squaring motion holds the parts "in position after each traverse. In order to produce figures in "intermediate positions the 'swivel' frame is capable of endway

" movement, and is actuated at the times or in the order desired, " similarly to that for the traverse of the 'swivels.' The 'swivels' " may move in horizontal directions, or when the figures are very " close together they may move in curves, and the curve of one " may cut through those of adjoining shuttles. The pinions " taking into the racks on the shuttles, and those taking into the " moving racks, are formed of 'sizing,' such as that of which " loom pickers are ordinarily produced. The picking is effected " by tappets on the crank shaft acting on moveable parts of the " picking levers. These moveable parts are brought into position " to be acted upon by their tappets, or moved out of the way of " those tappets by levers which are held in one position by springs, " and drawn therefrom by cords from the jacquard or pattern " surface. This method of controlling the order of picking is " applicable to other cases where variation in the order of picking " is desired."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1866, July 25.—N° 1931.

LEA, Henry, and LANE, Thomas.—This invention relates to that part of a loom called the shuttle box, and it is especially applicable to pneumatic looms. The patentees say:—" In con-" structing the shuttle boxes of looms and parts connected " therewith according to our invention we proceed as follows:— " We place the back of the shuttle box in a line with the reed " and secure the said back firmly to the lathe in the usual manner. " We make the front side of the shuttle box loose and capable of " a horizontal vibratory motion upon a vertical pin. To receive " the incoming shuttle we cause the moveable front side to be " pressed at one end by a spring, so as to incline the said side, " and thereby form a taper shuttle box wider at its mouth than " the shuttle, and narrower than the shuttle at the other end. " The shuttle, in forcing its way into the narrow end of the shuttle " box, presses back the loose side into a position nearly parallel " with its opposite fixed side, and it is brought to rest by friction " in so doing. For the exit of the shuttle from the shuttle box " we cause a lever or wedge to act in opposition to the said " spring, so as to place and hold the loose side of the shuttle box " parallel to and nearly touching the side of the shuttle, thereby " relieving the shuttle of the friction and giving it a true direction

" in its course. We limit the motion of the loose side each way " by adjustable stops. At the mouth of the shuttle box we place " a short adjustable guide in the usual manner, the said guide " being fixed in a line with the loose side when open. We place " a top upon the shuttle box, and we make the loose side air-tight " by means of a continuous flexible flange applied to its top, " bottom, and end.

" In applying our improvements to ordinary power and hand " looms we do not apply a top to the shuttle box, and we dispense " with the flexible flange at the top, bottom, and end of the loose " side of the shuttle box."

[Printed, 1*s*. Drawing.]

A.D. 1866, July 27.—N° 1953.

ORR, John.—" Improvements in ornamental weaving, and in " apparatus employed therein."

" The first part of the invention has reference to the production " of that class of brocaded or embroidered fabrics, in the weaving " of which brocading shuttles and apparatus are used. A lead- " ing object of this invention is to prevent the very frequent " stoppages consequent on the quick using up or exhaustion of " the embroidering material, consequent on the manner in which " ordinary swivel or brocade shuttles and frames are now used, " in which the shuttle threads are the ornamenting threads." According to this invention " the shuttle threads are used to draw " ornamenting warp threads into sheds opened to receive them, " the swivel shuttle threads becoming longitudinal threads in the " fabric."

Another part of the invention relates to an improvement on the " lappet frame principle of producing ornamental weaving, " and consists in the said lappet frame being used in combination " with double sheds, and being caused to execute similar work to " that usually performed by the use of the swivel frame and " shuttles." " The embroidering material is carried by the lappet " needles, by preference, above the fabric, the points of the " needles moving downwards into the shed, and the ornamenting " material is in weaving an ornament caused to pass underneath " portions of the warp and over other portions of the warp, thus " uniting the qualities of the two systems of weaving before " referred to."

Another part of the invention relates to a method of inserting pile into fabrics. "A comb is used of a peculiar construction, "which is generally made of a length to correspond with the "breadth of cloth to be woven, and the length of the teeth is in "proportion to the length or depth of pile to be inserted into the "fabric. The threads of silk, worsted, or other material of "which the pile or velvet is to be formed, are coiled round the "comb from the back to the points of the teeth, which are "serrated or grooved at the points to prevent the coiled threads "from getting into the openings between the teeth, and the teeth "are also curved or bent in some degree, so as to give the comb "concave and convex sides." "The ground or foundation cloth "is woven in the usual manner, and when the velvet pile is to be "introduced, which may be at intervals of one, two, three, or any "convenient number of shoots, the loom has to be stopped with "the lathe back and the requisite shed open, then the comb with "its supply of pile wound round is inserted (the points of the "teeth being downwards) among the warp threads, allowing one "or more of them to get into each opening between the teeth in "the same way as between the dent or split of a reed; a long "needle carrying a thread, which may be called the fastening "shoot, is then pushed through between the teeth of the comb on "its concave side, and the worsted or other material along its "whole length. The introduced thread is caught as it projects at "the other end of the comb from that at which the needle has "entered, and the thread is held by suitable apparatus while the "needle is withdrawn; one or more ground shoots are then "woven in in the ordinary way into the foundation fabric, and "the pile material is then cut along the length of the comb in "the manner common to velvet or plush weaving."

[Printed, 6*d*. No Drawings.]

A.D. 1866, July 31.—N° 1967.

BULLOUGH, THOMAS, and **OPENSHAW**, GEORGE.—(*Provisional protection only.*)—"Improvements in shuttles used for "weaving." "Near the front end of the shuttle, between the "shuttle eye and the top of the peg," the inventors "make or "fix a tube with an opening or slit at the top of it the whole of "its length, so that when the cop is placed on the shuttle peg the "end of the yarn or thread can be passed through the tube by

" the said opening or slit, and through the eye in the usual " manner.

" The object or purpose of this tube is that when the cop " becomes loose on the peg it will enter the tube, and cause the " yarn or thread to break, and thus prevent it running off and " become entangled in the shed."

[Printed, 4*d*. No Drawings.]

A.D. 1866, August 9.—N° 2050.

BROWN, John, and HITON, John.—(*Provisional protection only.*)—" Certain improvements in jacquard machines." This invention " consists, first, in communicating motion to the jacquard cylinder by the lifting lever, in which is a slot for a " moveable stud: this stud is connected by a link to an arm projecting from the swing frame of the jacquard cylinder, by this " means a varying to-and-fro motion may be given to the jacquard " cylinder according to the lift of the healds."

The second part of the invention consists in an " improved " mode of lifting the healds, so as to lift and lower those healds " furthest from the reed proportionately more than the others in " order to produce a V-shed; the grife and the bottom board are " prolonged beyond one side of the jacquard machine, and vibrate " on studs corresponding to the fell of the fabric, or that point " where the weft is beaten up into the cloth; the lifting lever is " connected either to the grife or to the bottom board by a side-" link and swivel joint; the grife and the bottom board are " connected by links and a double lever."

[Printed, 4*d*. No Drawings.]

A.D. 1866, August 9.—N° 2051.

DONNET, Barthélemy.—(*Provisional protection only.*)—These improvements relate to machinery for the manufacture of fringes. The inventor says :—" The first part of my invention consists of " a moveable shuttle distributor or feeder, the principal features " of which are, firstly, the mobility of its shuttles, which in order " to effect the coating of the core and form the ' torsade ' or " twisted portion are successively displaced almost automatically " by the working parts of the machine; secondly, an arrangement " and combination of parts whereby the same distributor can operate with an indefinite number of shuttles to be increased or

" diminished at will according to requirements." "The said " distributor has a double slide framing in which work the " shuttles and ear slides serving to receive and support them. " The shuttles are all placed and arranged over one another in " one side of the frame; they successively escape from the lower " part, so as to re-ascend on the other side of the said frame, and " take their position again on the upper part. In these various " movements each shuttle is moveable, and runs from one square " or compartment to the other, carrying along with it its thread, " which on being unwound wraps round the core at the same time " that the loop of the fringe is twisted." "The driving shaft is " moved either by a crank or other power; this shaft has on its " end a cam actuating spring catches, the office of which is to " maintain the whole of the shuttles on one side of the frame; " this cam, by acting and liberating the said catches, allows the " descent of the shuttles, so that the one last in action can come " back and take position on the upper part of the frame. The " shuttles carry on each side a racked gearing with toothed seg- " mental wheels, intended to make them pass from one frame " into the other. The ear slides serving one to receive the " descending shuttles, and the other to raise up that which has " just been in action, may have a variable motion according to " the number of shuttles to be used. The frame is connected " to the machine by cross bars at about one foot distance from " the back uprights forming part of the machine frame. These " uprights carry on their upper part an axis oscillating in bearings " actuated by a connecting rod and crank, which themselves " receive their movement from the driving shaft; they cause the " ear slides to move up and down, which takes the shuttle at " the lower part of the frame and causes its ascent to the upper " part, at which moment a toothed segment jointed to a lever and " actuated by a stud on the segment wheel is acting on the lever, " causing the shuttle to gear with the wheel and pass from one " side into another, and so forth. The toothed segmental wheels " are set in motion by bevilled pinions keyed on shafts corres- " ponding to the driving shaft.

"The second part of my invention refers to certain improve- " ments in fringe machinery." "The bed-plate consists of a " cast iron plate, on which is fitted the slide which moves up and " down, and upon which also is placed another slide which " receives the reel or twister; on this same slide is situated the

" twister gear. The drawback motion of the slide is caused by " means of a cam acting on a lever connected therewith by a " chain. The thread to form the sprig or twisted portion is " placed in the twisting hook by a batten upon which works the " shuttle hook, which at every time that the said batten moves " back comes and passes before the comb takes up the thread " displaced by the distributor (that is to say, that of the ascending " shuttle), and comes back after finishing its course, and presents " it to the twisting hook which twists it. The batten works by " means of a rod and a lever acted upon by a cam keyed on one " of the back shafts; it is supported by two rods acting as a " double slide. To this batten is fitted the comb, which is of " entirely new form; this carries at its lower part an eccentric, " whereby it is caused to take a double stroke previous to its " striking the head of the fringe, which permits of the sprig being " always twisted straight. The double slide support bears the " fringe head as follows:—One slide carries a spear point, which " opens the shed or warp threads for the better laying of the " weft threads; this spear point also serves to support the weft " thread when caught in the shuttle hook. The second horizontal " slide moves the spear point forth and back, whilst the other " (the fore one) moves the same to and fro. To the same slide " support is fitted the sprig-pressing pallet, which at the time of " twisting presses on the sprig which is being twisted, and prevents the torsion from passing into the head of the fringe. To " a round rod of the same support is fitted a small stop hook, " which prevents the twisting thread from going back. The slide " which carries forward the spear point, the small hook, and the " pallet, is actuated by a single cam placed on a transverse shaft " beneath the bed plate; a bevilled pinion keyed upon the shaft " (actuating a similar pinion, to which is connected the cam and " pinion bearing box) imparts the movement to all these parts; " this shaft is actuated from the driving shaft by means of two " ellipsoidal pinions. To the heald frames are fitted two weft " thread separators; whenever a frame goes down, the separator " comes between the weft threads, so as to only permit the passage " of that one which is to be taken by the shuttle hook and afterwards to be woven. To one of the two pillars (the one near " the driving shaft) is fitted a lever carrying a safety hook for " the taking up of the thread; this lever at each time the shuttle " distributor ascends will be depressed, hook up the passing

" thread, and hold it stretched, so that the shuttle hook may not
" miss it; this lever is actuated from the driving shaft. The
" heald frames are driven by a segmental lever, with teeth only
" at its end, gearing with a small pinion keyed upon a cross shaft
" that carries two pulleys to which are attached the heald frame
" straps; this lever is actuated by a cam which is connected to
" a wheel gearing with a pinion keyed upon the upper cross shaft.
" The fringe when made is drawn by the regulator between two
" rollers, and is afterwards wound up round a drum fitted inside
" the machine."

[Printed 4*d*. No Drawings.]

A.D. 1866, August 15.—N° 2100.

SHAW, William, and **CONNELL**, James.—The patentees say:—"This invention has for its object improvement in the
" manufacture of elastic and other fabrics. In weaving india-
" rubber fabrics suitable for braces and similar articles, it is now
" usual to employ two sets of warp threads, one of which remains
" constantly over the india-rubber, and the other constantly under
" it, so that these warp threads with the weft form as it were two
" separate fabrics, which are connected together in lines between
" the india-rubber threads by other warp threads, which may be
" called a binder or tie warp, and are worked constantly into both
" fabrics. With this arrangement, if it is desired to produce a
" pattern or figure on either face of the fabric, it is necessary to
" employ additional figuring threads, either warp threads or weft
" threads.

" Now according to our invention we produce a pattern or
" figure or the fabric without the use of any such threads.
" We employ as before two sets of warp threads in addition to
" the binder or tie warp and the india-rubber; these two sets of
" warp threads are of separate colors, or rather one set is usually
" white and the other colored, so that were we to weave in the
" ordinary way we should produce a fabric colored on one face,
" say the top, and white on the other, say the bottom, but without
" a figure. We, however, obtain a figure in the course of weaving
" by taking the white warp threads from the bottom, and making
" them for a time to weave with the weft at the top, and form
" part of the top fabric, whilst at the same time the colored
" threads go down, and in the same way form part of the bottom
" fabric. In order that the binder or tie warp may not disfigure

" the pattern thus produced, we make the threads composing it " alternately white and colored, or to correspond with the two " sets of fabric warps."

" Another description of elastic fabric is now commonly made " for boot gussets and other purposes, in which the india-rubber " is covered only by the weft which passes from side to side of " the fabric alternately, one shoot over and another under the " india-rubber warp, and these shoots of the weft thread are tied " down by a tie or binder warp working between the india-rubber " warps. In order to produce a figure on an elastic fabric of this " description, we employ two shuttles carrying wefts of different " colors, and each shoot instead of passing across either entirely " over or entirely under the india-rubber as heretofore, passes " under some of the india-rubber and over the remainder, and " where the first shuttle passes underneath the india-rubber, the " second shuttle with the other color passes over it, and vice versâ, " and so the figure is produced."

[Printed, 4*d*. No Drawings.]

A.D. 1866, August 15.—N° 2102.

COOPER, John.—(*Provisional protection only.*)—The inventor says:—"This invention has for its object improvements in battens, " and is applicable especially to looms for weaving double fabrics, " such as india-rubber brace webs. In producing such fabrics it " is usual for the shuttle to be caused to traverse to and fro in a " groove in the batten, by means of pinions gearing with a rack " on the shuttle. In some cases also in order to obtain greater " speed two shuttles are caused to traverse simultaneously in the " same direction through an upper and a lower shed, but fabrics so " produced are more or less defective on their edges or selvages. " In other cases also the shuttles have been thrown simultaneously " in contrary directions, and the edges of the fabric have been " more perfectly produced, but at the expense of rendering the " mechanism more complex, and also of rendering necessary a " wider opening of the sheds, the arrangements having been such " as to require a space of some distance between the shuttles.

" Now according to my invention I avoid these objections. I " give motion to the shuttles in the following simple manner:— " Underneath the shuttle races is a slide receiving a to-and-fro " motion in any convenient manner, on the top of this slide is a " rack gearing with pinions on the batten, one on either side of

" the reed, and these pinions gear also with a rack on the under " side of the lower shuttle, one pinion coming into gear with the " rack on the shuttle before the other goes out of gear in the " usual way. To drive the upper shuttle in the contrary direction " to the lower, there is a second rack at the back of the rack slide " already mentioned, and this gears with two pinions on vertical " axes mounted on the batten, one on either side of the reed; at " the upper ends of these axes are other pinions, and these gear " with a rack at the back of the upper shuttle, which thus receives " its motion. The driving racks and gear wheels are cased in to " prevent their becoming clogged with loose fibre or dust. Each " shuttle I prefer to make in two parts, one, the slide, which " remains constantly in its guide groove, and the other, the " bobbin carrier, which is attached thereto by catches, and can be " changed when it requires replenishing. I prefer to make the " shuttle slide of some length so as to obtain a steady motion, " whilst the bobbin carrier which for its passage requires the shed " to be fully open, is considerably shorter, so that the shed need " be kept open to its full extent only whilst this centre part of " the shuttle is passing. The batten may carry several reeds, " each working with two shuttles driven as above described, and " producing separate narrow fabrics. Similar arrangements may " be employed when weaving two separate fabrics one over the " other in the same reed."

[Printed, 4*d*. No Drawings.]

A.D. 1866, August 24.—N° 2176. (* *)

WREN, Henry, and HOPKINSON, John.—" Improvements " in machinery for winding yarn and thread."

This invention relates to that class of winding machine in which yarn or thread is wound upon conical bobbins or " pirns," the object being to effect a more equal distribution of the yarn or thread than is usually attained. The yarn or thread passes from bobbins or hanks in the ordinary manner, the pirns being placed on spindles with the larger diameter of the cone downwards, and each spindle being weighted, so as to hold the conical part of the pirn in contact with a cup which is open at one side and connected to a lever mounted on a fulcrum stud in the usual manner. In ordinary winding frames the thread is allowed to pass from the guide rail to the pirn through the opening in the cup without any other guidance than that of the rail, but in this machine the cup "is provided with a presser guide, with a spring or weight " acting in conjunction with the cup on the yarn or thread, and " causing it to be wound tighter, and to be more regularly dis- " tributed than heretofore, thereby winding a greater length of " yarn or thread on each pirn, and ensuring an increased facility " for its coming off in the process of weaving, as the coils are " wound at even distances and do not overlap each other. The " levers of the presser guides are hinged to studs which are " fixed on the copping rail, and each presser guide is connected " by a hook to the corresponding cup lever, so that as the cup is " moved to one side the presser is moved in the contrary direction " to allow the full pirn to be removed, or for piecing up a broken " end. As the yarn or thread accumulates on the pirn the " spindle is gradually depressed until when the pirn is full, the " driving band, which passes around a wharve or small drum on " the spindle, comes on to a loose pulley, thereby stopping the " spindle." The weight which acts upon each spindle has a treadle attached to it, "and the attendant, by placing his foot on " the aforesaid treadle, can depress the spindle, and has both " hands at liberty for piecing up or for removing the full pirn and " placing another empty one on the spindle."

Each presser guide is furnished with a "conductor," through which the yarn or thread passes in its way to the guide, the latter being grooved in such a manner that the thread or yarn, which passes along such groove, is kept in its proper position and laid in regular coils at equal distances on the pirn, the weight or spring which acts upon the guide, at the same time allowing the latter to accommodate itself to the varying diameter of the pirn during the ascent and descent of the traverse rail, which is effected by ordinary means.

[Printed, 8*d*. Drawing.]

A.D. 1866, August 25.—N° 2186.

RICHARDSON, CHARLES. — This invention relates to further improvements in looms to those patented 16th April 1866, No. 1067, "and consists in a new and peculiar form (in con- " struction) of an air pump or pumps (as the case may be) to be " attached to each loom to furnish air to impel the shuttle at " every stroke of the lathe of the loom, each stroke of the pump " furnishing just sufficient air to impel the shuttle from one side " of the loom to the other. These pumps (or pump) may be so

" arranged in the driving 'gear' as to alter the length of the " stroke, so that a more or less quantity of air may be taken in " and ejected by the pump in proportion to the weight of and " distance to which the shuttle is to be thrown. The egress " pipes from the pumps or pump being taken direct to the shuttle " box at each end of the lathe of the loom.

"Another and important improvement in looms is in impelling " the shuttle by the action of air or any known fluid against a " piston or plunger, so that by confining any elastic or non- " elastic fluid between a piston in a cylinder, and having a pipe " leading from this cylinder direct to a small cylinder and piston " or plunger at the back of the shuttle box, so that any " percussive or quick force striking the first piston will move " the column of fluid intervening between the two pistons, and " strike piston No. 2 with equal force and velocity, thus im- " pelling the shuttle from left to right and right to left of the " lathe of the loom.

"Another important improvement is in impelling the shuttle " by the explosion of carburetted hydrogen gas and common " air in their proper equivalents behind a piston which strikes " and impels the shuttle, such explosion being effected by the " agency of the electro-galvanic spark at every throw of the " shuttle."

[Printed, 10*d*. Drawing.]

A.D. 1866, August 28.—N° 2212.

BUCKTON, Richard.—"Improvements in looms for weaving." " This invention consists of a novel arrangement of the up-take " motion, whereby the combined advantages of the positive and " the lever and weight up-take motions are secured and their " respective disadvantages avoided."

The "improvements consist of a combined motion having a " roller driven by positive gearing to secure the number of picks " required, and a cloth beam moved by a lever and weight to " secure the taking up of the cloth as it is delivered from the " positive roller; the cloth also being put round an intermediate " friction roller in such a manner as to prevent any possibility of " its slipping round the positive roller, thereby adding to the " power of the positive roller and preserving the face of the cloth. " With this motion either heavy or light cloth can be woven " in the same loom, and as there are no rising or falling levers, as

" in some motions, or regulating catch wheels, as in others, the " cloth beam can be made as large as may be conveniently " required."

[Printed, 6*d*. Drawing.]

A.D. 1866, August 29.—N° 2229.

TONGUE, John Garrett.—(*A communication from Thomas Robjohn.*)—" Improvements in looms." " This invention relates " to novel means of depositing the filling or weft within the " warp, and of forming the selvedge at one edge of the web. " The weft yarn or filling is taken from a bobbin spool or yarn " beam arranged in a suitable position by means of an eye- " pointed needle, the length of which is somewhat greater than " the width of the warp or web to be woven, and which is so " arranged, applied, and operated as to have a longitudinal " movement to and from a direction transverse to the warps and " properly timed in relation with the harness motion of the loom " to enter the warp from one side, pass through it, and be " withdrawn therefrom every time the shed is open by the harness " in the usual manner. By this movement the said needle is " made to carry the weft yarn or filling double through every " shed of the warp. At the opposite side of the warp to that at " which the needle enters there is arranged a suitably operated " shuttle or equivalent device, such as is used in sewing machines " for carrying a locking thread, and the movement of which is so " timed that while the shed of the warp remains open after the " passage of the weft-carrying needle through it, and before the " return of the said needle commences, or immediately after the " commencement of such return, the said shuttle or its equivalent " carries a yarn through the loop formed by the doubling of the " weft yarn at the eye of the needle, and so causes the double " weft yarn to be retained within the warp while the needle " returns. The yarn carried by the aforesaid shuttle or equivalent " forms the selvedge yarn on that side of the warp at which the " said shuttle or equivalent works, and the movement of the said " shuttle or equivalent is so timed that it reaches its greatest " distance from the warp, after passing through the double weft, " at the same time as the needle completes its return movement, " so that the weft yarn and the selvedge yarn pull, or are drawn, " against the other in such manner as to form a tight selvedge."

" The present invention also consists in a certain novel recessed
" construction of the shuttle and needle whereby the shuttle may
" enter between the weft yarn and needle before the formation of
" the loop by the retraction of the latter, and the needle in retiring
" clear the shuttle, though working in close proximity thereto;
" likewise in a peculiar action of the reed, and in a novel arrange-
" ment of a frictional weft tension device relatively to the weft
" carrying needle and guide of its stock; also in a peculiar
" combination and action of a weft retractor."

[Printed, 1*s*. Drawing.]

A.D. 1866, August 31.—N° 2246.

OWENS, JOHN.—" Improvements in looms for weaving." The improvements relate to that part of the jacquard machine which forms the connection between the ordinary perforated cylinder and the shafts of the healds. At the upper part of the loom two bearings support a number of pulleys placed side by side in the form of a cylinder, over which cords are passed, the two ends of each cord being attached to flat blades, which are thus balanced; a recess is formed on both sides of each blade, the lower ends of the blades are connected by cords to levers, which are attached to the shafts of the healds. The blades are so connected to the ordinary jacquard needles that the recesses formed in them are brought into position to be raised by lifting bars when not pushed back by the pattern cards, and those blades which are pushed back are carried down by descending bars.

[Printed, 8*d*. Drawing.]

A.D. 1866, September 3.—N° 2258.

KNOWLES, MARK.—" Improvements in looms for weaving
" carpets and other pile fabrics, part of which improvements are
" applicable to other looms." The first improvement relates to the picking motion, " and consists of a fixing on the top part
" of the picking stick so as to allow the picking stick to work in it
" and at a distance from the centre of the picking shaft of from
" one to five inches." In under pick looms a similar arrangement is used to that now used for overpick only the shaft is placed horizontally instead of vertically.

The second improvement consists in fixing a pulley with a V-groove in it on the yarn beam, a cam on the crank shaft presses a finger into this groove so as to hold the yarn beam when the beat up takes place.

The third improvement refers to the shedding motion, "and " consists in the introduction of an extra set of treading tappets, " allowing thereby the treadles to work in between, by which " means the levers attached to the healds or heddles are alternately risen and depressed, and by introducing a pair of bevel " wheels on the tappet shaft" the treadles, top levers (or lambs) and healds " are all carried in a parallel line."

The fourth improvement relates to means for actuating vertical shuttle boxes. Underneath the shuttle boxes is placed a crown cam, which acts upon a pair of bowls attached to the shuttle boxes, as the crown cam revolves it causes the shuttle boxes to rise or fall as required. "The crown cam is caused to revolve by " means of a hook mounted on a stud to the loom framing; the " tail end of this hook rests upon a boss, round which a chain " works; this chain and boss is caused to revolve by means of " wheels from any of the shafts of the loom." "Upon this chain " are swells, which swells cause the hook lever to take hold of " the crown cam when required and bring it into position for " changing the shuttle box."

The fifth improvement consists in using a screw and nut instead of a spring for holding the picker spindle in its place.

The sixth improvement refers to the wire motion "whereby the " wires are inserted in the shed and withdrawn from the cloth " during the time the slay makes two revolutions." "A grooved " rail called a wire rail" is employed, "this rail is bolted to a " vertical fixing and then mounted on two bent brackets, which " are placed on the end of the rocking shaft. This rail has an " intermittent motion imparted to it by means of a cam placed " on and revolving with the tappet shaft and connected to the " vertical fixing of the wire rail by a connecting rod and bowl. " In front of and parallel with this rail is a slide rail which is " fixed to the framing of the loom. On this rail slides a finger " which finger is caused to travel the whole length of the wire " rail for the purpose of withdrawing the wires from the cloth " and inserting them in the shed."

The seventh improvement is a modification of the last. Instead of placing the finger on a separate slide it is attached to the wire rail so that the finger travels with and along the wire rail.

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1866, September 6.—N° 2292.

BULLOUGH, John.—" Improvements in looms." This invention consists in mechanism for changing a shuttle in which the weft is broken or absent for another shuttle having weft, without stopping the loom. To one end of the slay is fixed " in an " upright position a box or case open at the top and bottom, and " containing a number of shuttles one upon another, so held as " to allow space for a shuttle to pass to and fro beneath them on " the race of the slay. The said shuttles are supported on the " lower edge of a holder pivotted to brackets fixed to the shuttle " box, there being springs for keeping the holder in its holding " position, and a lever for shifting the holder when a fresh shuttle " is required to drop on the slay, the said lever being worked by " an incline on a sliding bar put in motion at the required time " by mechanism at the other end of the slay.

" The picking sticks and weft stopping motions are of the " ordinary construction, but to the picking stick at the opposite " end of the shuttle box" is given " a backward movement after " there is a breakage or absence of weft, the top of the stick " moving in a hole or space at the end of the slay. To allow this " backward movement the rocking bracket which carries the picking stick is held to the rocking shaft by a key placed in a wider " slot in the bars of the bracket than the key, but held up to its " working position by a strong spring." For bringing the picking stick back there is connected to the rocking bracket " a tappet " lever which can be acted upon by a tappet worked from the " tappet shaft when there is breakage or absence of weft, but the " tappet lever is kept out of reach of the tappet when there " is weft by means of a spring." For bringing the tappet lever within reach of the tappet there is placed " behind the weft lever " an arm fixed to a shaft extending across the loom below the " breast beam, which shaft carries at the other end an arm for " acting by means of another lever and rod on the tappet lever, " so that when the tappet presses down the tappet lever the picking stick is pulled back, and as the stick is going back it gives " motion to other levers which work the sliding bar employed " for actuating the shuttle holder. When a shuttle has to be " changed the incline at the end of the sliding bar forces back " the lever of the shuttle holder and moves back the swell of the " shuttle, thereby slightly turning the holder on its pivots and

" causing an upper ledge on the holder to move forwards and " pass under the edge of the second shuttle, resting on the bottom " one in the box, and at the same time causing the bottom ledge " to move back to allow the bottom shuttle to fall on the slay, " but the moment the incline on the sliding bar is drawn back by " a spring the upper ledge moves away from the edge of that " which was the second shuttle, but is now the bottom one, to " allow the descent of all the shuttles, and at the same time the " bottom ledge of the holder passes inwards and supports the " bottom shuttle and also all the others above it. Thus when " there is a breakage or absence of weft the tappet lever is brought " in the way of the tappet, which as it revolves pushes down the " tappet lever and pulls back the picker for allowing the shuttle " after being thrown across to strike a cushion and remain for an " instant at that end of the slay, and as the stick is going back " the sliding bar is moved so that its incline acts upon the shuttle " holder to allow a fresh shuttle to drop on the slay and be driven " across without any stoppage of the loom, and the instant the " tappet is free of the tappet lever the strong spring brings " forward the picking stick to its proper position for driving a " fresh shuttle from that end of the slay, and as the stick comes " forwards it forces the shuttle with the broken or absent weft " into a receptacle."

[Printed, 1*s*. Drawing.]

A.D. 1866, September 8.—N° 2308.

CATLOW, CHRISTOPHER.—" Improvements in looms for weav- " ing." " This invention relates, firstly, to further improvements " in the 'taking-up motion,' for which letters patent were granted " to William Hudson, Christopher Catlow, and John Dodgeon, " A.D. 1863, and numbered 1994, and consists in the use and " employment of a rod or 'tension roller' extending along the " periphery of the 'emery roller,' and attached by a link or con- " necting rod at each end to the shaft of the 'cloth roller,' the " cloth passing over and under the tension roller and on the " emery roller, from thence to the cloth roller. As the cloth " roller increases in diameter, the links or connecting rods which " support the friction roller allow the said roller to descend " on the periphery of the emery roller, thus maintaining an " uniform tension or drag on the cloth at the varying diameter of " the cloth roller.

" Secondly," "to the use and employment of weights or springs " applied to the friction or drag rollers of the 'delivery motion' " (delivery of yarn from the beam), the friction of the warp actuat- " ing the said rollers instead of actuating such rollers by means " of gearing as heretofore.

" Thirdly, in the application and use of a bell-crank lever and " cords for the purpose of obtaining the necessary drag on the " warp beam. From one arm of the said lever (which lever works " on a stud) is a cord passed over a pulley and attached to one " end of the warp beam; to the other arm of the said lever is " attached a weighted rod or bar; a cord from the said rod or bar " is passed round the other end of the warp beam."

[Printed, 10*d*. Drawing.]

A.D. 1866, September 13.—N° 2351.

CLARK, William.—(*A communication from Pierre Bouvier, Benoît Bouvier, Jean Baptiste otherwise Jules Bouvier and Geoffroy Bouvier.*)—"This invention relates to the introduction of pearls " or beads of all kinds and like substances of various sizes, and " of any materials during the weaving of cloth or other fulled or " piled fabrics."

The patentee claims "applying beads of all kinds and other " similar ornaments to the threads of which fabrics are composed, " the said threads being sufficiently large or the holes in the " beads sufficiently small to prevent their sliding freely, as also " the method of fixing such beads by the addition of a supple- " mentary thread twisted or entwined thereon with a view to pre- " vent the displacement of the bead or other ornament during the " weaving." Also "the use and application of such threads " having beads applied in the manner described to form the " warp or weft threads of fabrics of all kinds for the purpose of " ornamenting the same."

[Printed 4*d*. No Drawings.]

A.D. 1866, September 14.—N° 2367.

BOYD, John, McPHERSON, John, KERR, Thomas Knox, and TAYLOR, John.—"This invention relates to improvements " in the construction and action of winding apparatus, and con- " sists principally in providing for the automatic separation of " the spindle from the pirn on the latter becoming full."

"The improvements are applicable in practice under various

“ modifications, in one of which the winding spindles arranged, for winding thread or yarn from reels or bobbins upon pirns are disposed horizontally or with a slight inclination with their pirn ends directed outwards. Each spindle is driven by a cord from a drum below by means of a grooved wharve or pulley set in bearings; the wharve is formed with a square eye and a square part of the spindle passes through it, the spindle being thereby rendered capable of moving longitudinally whilst being turned by the wharve. The yarn or thread is built upon the pirn in conical layers by well-known means, being compressed by stationary hollow cones or cups, which cause the pirns and spindles to gradually recede inwards as the pirn fills. On any convenient part of the spindle a projection is formed to act on and be acted on by a weighted or spring claw. The projection is in the form of two cones placed base to base, or in that of a cylindrical part terminating in a cone or inclined part, and as the pirn approaches the end of its inward movement the projection lifts or keeps up the claw, but the moment the claw gets over the ridge its weight or spring pressure causes it to move down the front inclined or conical part of the projection, in doing which it carries the spindle a little further inwards, detaching or separating it from the pirn.” “ In another modification the spindle and its driving wharve or pulley are arranged as described in the Provisional Specification of an invention for which John Boyd, one of the present applicants, applied for Letters Patent on the 4th August 1866 (No. 2013). An incline is formed on the side of the longitudinal opening, slot, or groove in the wharve piece at the part at which the pin on the spindle arrives on the pirn becoming full, and this incline then causes the spindle to recede still further inwards, and to become thereby separated or detached from the pirn. The groove with its incline may be on a spindle within a tubular piece having a pin working in the groove, and such spindle may be either the winding spindle or a spindle fixed to the wharve whilst the tubular part is fixed to the winding spindle. The part of the slot or groove which acts on the pin whilst the pirn is filling, may be made with a slight helical twist reversed as regards the incline, so as to slightly resist the backward movement of the pirn, and thus produce on it the requisite pressure without the aid of an inclined position of the spindle or of weighted pressing levers.”

[Printed, 10*d*. Drawing.]

A.D. 1866, September 14.—N° 2369.

TUNSTILL, William.—"An improvement in braiding machines "and warp regulators." The patentee says,—"Braiding machines "are usually constructed with a plate through which is an "8-shaped slot, or a series of them, in which carriers are moved "by revolving plates below with notched edges.

"My improvements consist in a sheet metal thread case fitted "upon each of these carriers, in which is introduced a bobbin or "cop so as to keep the same always clean, and from which the "thread passes off endwise and vertically with uniformity and "without friction or strain, instead of sidewise and horizontally "as heretofore usual, and under the friction and strain due to "rotating the spool. The thread passes around a grooved ratchet "wheel once or more, which ratchet wheel is placed above the "thread case and held by a pawl. A pulley attached to a variable "weight guided by wires hangs upon the thread as it passes "down from the grooved ratchet wheel, below the pulley, and "up through the delivering eye to the point where it is braided. "This mechanism prevents friction on the thread, keeps up a "regular tension on it, and takes up the slack by the rise and "fall of the weighted pulley, and when the pulley rises high "enough a finger extending upwards from the weight lifts the "pawl from the grooved ratchet wheel to let it turn and give out "more thread."

"The aforesaid weighted roller, grooved ratchet wheel, and "pawl may be employed to give tension to one or more warps "in a loom, and thereby act as a warp regulator and let-off "motion."

[Printed, 8*d.* Drawing.]

A.D. 1866, September 21.—N° 2422.

DAVIES, George.—(*A communication from Thomas Roberts White, and William Glenn Bedford.*)—(*Provisional protection only.*)—"This "invention consists of a fabric composed of wires interwoven "with cotton or hemp threads, or threads of other fibrous mate"rial, the fabric thus made being used for driving belts, hose, "other tubing, and for other useful purposes. This invention "also consists of a fabric composed of threads and wires inter"woven and coated with waterproof material substantially, as "described hereafter, the said fabric being strong, durable, and

" light, and especially applicable for forming tubes to be used " with drills in boring artesian wells." " Both sides, or only that " side of the belt in contact with the pulleys, may be coated with " gum elastic or gutta percha, and the wire may be varnished or " coated with shellac, or otherwise prevented from rusting, or " they may be clothed with fibrous material prior to being woven. " In making the tubing of this fabric, the loom in which it is " usual to weave hemp hose may be used in a manner too well " known to need description, the wires being the warp and " extending longitudinally in line with the tubing, while the weft " threads extend round the tube and are interwoven with the wire " warp. Secondly, the fabric of wire and threads thus interwoven is passed through a solution of india-rubber, gutta percha, " or other waterproof material or composition, which adheres to " the fabric in the form of a thin coating. A thin sheet of rubber " or other suitable material is then applied to each side of the " newly coated fabric, and the whole is passed between rollers " so arranged as to exert upon it a pressure, the rubber sheets " being thus caused to adhere firmly to the coating. The new " fabric thus formed is ready for use as soon as it leaves the " rollers.

" In some instances it will be best to use a fabric in which the " warp is composed of thread and the weft of wire. Both warp " and weft may consist of both thread and wire."

[Printed, 4*d*. No Drawings.]

A.D. 1866, September 21.—N° 2427.

CLARK, William.—(*A communication from Hosea Elliott.*)— " This invention relates more especially to power looms, and it " consists principally in throwing the shuttle independent of or in " connection with the cam shaft, and so as to secure an uniform " pick motion whatever the speed of said staff may be. The cord " of the picker shaft runs over a pulley on the end of a vibrating " lever, which is placed between the swords of the lay, and is " made to vibrate by a cam that acts on an arm extending from " the lever; the said cord is attached to the longer end of another " lever placed on the lower part of the loom, the shorter end of " said last-mentioned lever being connected with a spring that " tends always to depress its longer end, which is raised at certain " times during the revolution of the ordinary cam shaft by means " of a lifting crank which falls rapidly through a portion of its

" revolution and allows the springs to depress the longer end of " said lever, and thereby move the picker staff inward against the " shuttle. The staff is kept at the inward end of the shuttle box " after it has driven out a shuttle until the shuttle is ready to " return, when the staff is brought back to the outer end of the " box, thereby preventing the weaver from 'boxing' two shuttles " at the same time. The motions for both picker staffs may be " combined, or they may be separated; in the former case the " vibrating lever may have a double arm, one for the cord of each " staff, and a central arm which rests on a cam wheel whose revolution vibrates the lever so as to raise and lower the ends of the " arms which carry the cords of the picker staffs. When the " motions are required to be separated, as in the case of wide " looms, the staffs are operated from separate cams."

[Printed, 10*d*. Drawing.]

A.D. 1866, September 22.—N° 2444.

RAMSDEN, John Carter.—(*Provisional protection only.*)—These improvements consist, first, in the application of gutta percha in connection with helical springs to the manufacture of reeds; secondly, in the mode of putting such reeds together. The inventor describes his invention as follows:—" I place two " pipes on a table or frame the proper distance apart, according " to the depth of the reed required; these pipes may be heated " either with steam, hot air, or hot water; they are supported at " suitable intervals by small castings. Upon these castings " alongside each pipe is placed a continuous comb the particular " set or fineness the reed is required to be; I then take two " helical springs, one with the twist or spiral to the right and the " other to the left and insert up each a length of gutta percha " cord of a suitable thickness. I lay one spring upon each pipe " alongside the combs; I then insert the dents or flat wires both " into the springs and combs, the dents resting upon the gutta " percha placed inside the springs when I have inserted a sufficient " number of dents I turn into the pipes either steam, hot air, or " hot water and in a few minutes the gutta percha will be " sufficiently soft. I then press down the dents or flat wires " into it, turn off the steam, hot air, or hot water, whichever it " may be, and turn into the same pipes a stream of cold water, " which rapidly cools the gutta percha and sets the dents sufficiently fast but preserves the elasticity by reason of the heat " which is applied not being sufficient to cause the gutta percha

" to stick to the dents; I then put up inside each spiral spring " on the top of the dents a length of wire or pull up a sufficient " quantity of soft fibrous substance to prevent the dents from " coming out of their places; the reed is then lifted off the combs " and will be found to be the correct set; it is then finished off " and cased in the usual manner."

[Printed, 4*d*. No Drawings.]

A.D. 1866, September 26.—N° 2477.

GEDGE, William Edward.—(*A communication from Louis Joseph Gras, Charles Isaac Dumontier, and Léon Gras, senior.*)—(*Provisional protection not allowed.*)—" Certain improvements in " looms for weaving gauzes and other fancy goods." " By means " of the box herein-after described all the treadles hitherto " indispensable are no longer needed in the manufacture of the " above-mentioned woven fabrics, a single treadle sufficing to " set the entire arrangement at work; to this treadle is fixed a " draw cord which moves a balance beam traversing the square of " a box enclosing its mechanism and containing 9 elastics corre- " sponding with as many hooks lowering and rising at the will of " the weaver and producing similar effects on each coat or 'lame' " formerly set in play by each of the treadles of the old method for " the crossing of woven fabrics which may be modified and obtained " in various ways. To cylinders also contained in the square of " the box are fitted by screws both above and below wooden pieces " serving to push back the hooks which are not to work. A " hammer held by a spring causes the cylinder to make a quarter " of a turn in falling after having been lifted by the play of the " balance on one of its quadrangular faces. The hooks and " springs as well as the hammers work in such a way that when " the upper ones are in movement the others are in repose and " vice versa."

[Printed, 4*d*. No Drawings.]

A.D. 1866, September 26.—N° 2482. (* *)

BONNEVILLE, Henri Adrien. — (*A communication from Célestin Martin.*) —" Improvements in machinery for weaving " wool and other fibrous materials."

Although this invention is stated to consist of improvements in machinery for "weaving," it relates in reality to an application to the carding engine of certain apparatus for dividing the fleece of material laid by the main cylinder of the engine upon the doffer into narrow sheets or breadths, these being each then twisted into a thread by suitable mechanism. This apparatus for dividing the fleece consists of an upper and a lower bar or rod passing across the machine, the upper rod being a little above and the other a little below the point at which the material is delivered by the main cylinder to the doffer, and these rods sustaining vertical or nearly vertical steel blades, or iron or steel wires, which thus pass between the main cylinder and the doffer, and serve to separate the material as it proceeds from the former to the latter into the number of narrow sheets or breadths required. The use of these blades or wires is claimed as effecting the separation of the material into suitable narrow sheets or breadths without the application to the doffer of the "collars" usually employed for the purpose, and without the necessity for supplying the material itself to the engine in separate ribbons.

[Printed, 8*d*. Drawing.]

A.D. 1866, September 27.—N° 2503.

BIGELOW, Erastus Brigham.—"Improvements in power " looms."

This invention relates, "first, to the mode of engaging the " driving pulley with the driving shaft and of disengaging the " same." With respect to this part of the invention the patentee claims the combined arrangement of mechanism "for connecting " the driving shaft of a loom with its driving pulley consisting of " a rod capable of sliding endwise of the shaft acting by toggle " jointed levers or their equivalents on friction levers (carried by " a wheel fast on the shaft) to press them against the circumference " of a driving pulley which when not thus engaged turns loosely " around the shaft."

"Secondly, to the mode of connecting the driving pulley with " the loom whereby a reverse motion may be given to the loom;" " Consisting of a pinion on the hub of a pulley (turning freely " around the driving shaft) which transmits motion to a wheel " which can be moved up and so caused to gear with a wheel fast " on the driving shaft."

"Thirdly, to the apparatus for stopping or starting the loom;" " consisting of two shafts placed below the breast beam of the " loom, viz., a shipping shaft which when set free is caused to " turn, and by so doing throw the loom out of gear and apply a " break to stop the loom and a releasing shaft which when turned " first acts to release the shipping shaft, if turned still further to "release the break to set the loom free, and also, if desired, when "caused a third time to turn still further to bring into action a "reversing motion to turn back the loom to any desired position. "The protector for stopping the loom, when the shuttle fails to "enter the shuttle box instead of striking directly against a fixed "stop acts on a lever between which and the fixed stop a spring is "interposed whereby the sudden shock of the loom is avoided."

"Fourthly, to the mode of stopping the loom at varied intervals "for changing the shuttles by hand and also for regulating the "time of changing them automatically." With respect to this part of the invention the patentee claims "combining with an "index wheel or other pattern surface, employed for stopping the "loom when the shuttle is to be changed, or for bringing into "action the apparatus for changing the shuttles when automatic "apparatus is employed for changing the shuttles, an intermitting "movement to throw the pattern wheel out of action," "the "intermitting movement being regulated from the positive take-"up motion."

"And, fifthly, to the mode of giving out the warps and of "taking up the cloth;" "consisting, first, of a vibrating roller "over which the warps pass and which is carried by levers having "segment racks formed thereon that gears with pinions on a "shaft acted on by coiled springs."

"Secondly, of a lever arm on this shaft carrying a stop the "position of which regulates the amount of motion given to the "ratchet that turns the yarn beam."

[Printed, 5*s*. 8*d*. Drawings.]

A.D. 1866, October 6.—Nº 2577.

LEATHER, SAMUEL.—(*Provisional protection only.*)—This invention relates to the weaving of various articles of dress so as to partly dispense with the necessity of cutting out and sewing. The inventor says:—"I employ ordinary jacquard apparatus to work "the harness for forming the shed or sheds, the cards of which "I so arrange as to operate on the warp to weave 'double cloth,' "or two fabrics one over the other at the same time (which is "not new), and I also arrange the cards as that certain parts of "the warp or the threads thereof are operated to produce single "cloth only whilst the other parts are double cloth, thus the two "fabrics are joined together at certain intervals in the process of "weaving instead of sewing them together.

" I therefore arrange the cards of the jacquard apparatus to " operate the threads of the warp according to the pattern or " shape of the article to be manufactured in a similar manner to " ordinary pattern weaving so as to fasten the two fabrics together " by weaving at the precise places where the seames would be in " the article when produced by the ordinary mode of sewing or " stitching them together; and by this means I can also weave " the linings in or along with the outside of the garment."

[Printed, 4*d.* No Drawings.]

A.D. 1866, October 9.—N° 2603.

CONLING, JAMES.—" Improvements in preparing fibrous materials to be spun, parts of which are applicable to the warping of " yarns or threads, and other parts to the washing of yarns and " textile fabrics."

The first part of this invention " consists in improved machines " or apparatus for drawing cotton, silk, flax, wool, and other " fibrous materials."

" The second part of this invention relates to the stop motions " of drawing frames and warping mills, and consists in employing " double-acting spoons or balanced levers for the slivers or yarns " to pass over, instead of the single-acting spoons at present " employed."

The spoons are made of sheet steel, stamped out and pressed into the form required, that is, with the back or fed part formed for holding the end down, and the front to hold the thread up, and by this means the yarn or end is acted on in two points instead of one. The spoons are placed in two rows in an ordinary expanding and contracting wraith working horizontally, and having springs on both ends of the dents forming the wraith; the dents near each end have holes punched in them, and two light steel wires are passed through the holes for forming bearings for the spoons, which rest on the wires and expand and contract with the dents. " The stop mechanism consists of an oscillating lever " extending across the frame below the spoons and working on " centres. This lever is actuated by another lever having spring " joints, which joints on the fall of a spoon catching the oscillating " lever yield and lift the ordinary catch, which actuates the knocking-off spring."

[Printed, 2*s.* 6*d.* Drawings.]

A.D. 1866, October 10.—N° 2620.

BULLOUGH, JOHN.—" Improvements in looms." The "first " improvement is for a floating motion, that is a means of stopping " the loom whilst it is in the act of making a float." A light framework is formed of two strips placed parallel along the reed cap, these strips are connected "by two cross pieces placed near " to each other so as to leave only a narrow slot; these cross " pieces are repeated at equal distances of about a quarter or " three-eights of an inch all along the length of the two strips " running along the reed cap, giving the appearance of a small " ladder placed flat way when looked at from the top." In each slot thus formed is placed "a slight instrument of metal or other " material capable of working up and down freely. These " instruments are lifted by the yarn as it rises in the reed and " fall by their own gravity when the yarn is withdrawn from " under them. Thus they rise and fall with the motion of the " yarn up and down the reed, and as in the formation of a float a " vacant space is left in the sheet of yarn, one or more of these " instruments remains down. Now as these instruments are " formed with a slot narrow at the top part and wider at the " lower part it is only when they are all lifted that a flat rod " which is threaded through the narrow slots of these instruments " can make a pick or short stroke as the rod has on its lower " edge a cross pin before every instrument, which can only pass " through the wide part of it, that is the part which comes " opposite the pin when the instruments are raised. This flat " rod failing to make its stroke fails to raise the hook end of a " balance lever which then in its traverse with the slay comes in " contact with a catch and pulls the spring handle off with which " it is in communication."

The next improvement relates to a former invention A.D. 1866, No. 2292. The present improvement consists in "the employment " of substitute or artificial weft for preventing the weft fork from " being acted upon by the sector hammer after the blank pick."

The next improvement relates to working loose reed looms on the self-changing principle. The patentee places a swell in the " feed box, back or front, at either end, which has a swell " tendency to press inwards, but as long as there are two shuttles " that is one in addition to the working shuttle, the swell is kept " outwards. The moment this shuttle drops into the working

" shuttle box the swell springs inwards and raises one end of a " balanced lever which comes in contact with the spring handle " and stops the loom."

The next improvement relates to a check for the shuttle. On the side of the picking stick (in under pick looms) is fastened " a piece of leather, india-rubber, or other yielding material at " such a position that as the picking stick is finally forced " backwards by the shuttle the downward course it is taking " brings the leather or india-rubber in contact with the top of the " picker, which resting on the fly plate does not yield, and " therefore the shuttle is resisted or checked by the pressure of " the leather or material against the picker."

"The next improvement is for the adaptation of the self-shuttle " changing principle to over pick looms, and consists in having " one side of the slot in which the picker foot works cut away a " part of its length so as to allow the picker to be turned from a " vertical to a horizontal position, so that the shuttle which has " to be ejected can glide under it, and as the picker resumes its " position by the action of a spring it helps to force the shuttle " into the receiving box."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1866, October 11.—N° 2628.

CRICHTON, David, DONBAVAND, William, and CRIGHTON, Duncan.—" Improvements in looms." "This invention " relates, first, to the taking-up motions of looms, and consists " in improved arrangements of machinery or apparatus for combining oscillating leverage having compensating diminishing " motion with ratchet wheel arrangements of a compound " nature, for the purpose of giving intermediate speeds between " the regular changes of the wheels in order that the various " diameters of the beam with cloth made by weaving, multiplied " by the velocity of the beam at that time, will always give the " same product, thereby ensuring uniform surface motion to the " cloth during the process of weaving."

Secondly, instead of the ordinary swell motion the patentees employ "at each end of the lathe or batten a parallel oscillating " pressure mechanism actuated by the shuttle when it boxes " clear of the warp, so as to receive, press against, and travel " with the shuttle to assist in checking its progress before

" meeting the pickers, and enable it to have an easy entrance and " delivery from the boxes one to the other when driven by the " pickers."

[Printed, 1*s*. Drawings.]

A.D. 1866, October 13.—N° 2648.

SAGAR, THOMAS, and RICHMOND THOMAS.—(*Provisional protection only.*)—This invention relates to the taking up of the cloth in looms for weaving. The inventors say :—" We propose to apply " a roller, by preference of iron, against the driving beam, and " resting upon brackets, so that in the event of the cloth being " unwound or liberated the roller will not fall away from the " beam. The said roller has no connection with the cloth beam; " as the cloth comes from the breast beam it passes outside the " roller and over the driving beam (which we use smooth instead " of roughened as usual), and is itself pressed upwards towards " the breast beam with the full force of the tension of the cloth " from the breast beam against the smooth surface of the driving " beam with sufficient force to drive the heaviest goods without " requiring any excessive pressure from the cloth beam, which is " placed below or against the driving beam."

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 13.—N° 2650.

BODMER, LOUIS RUDOLPH.—(*A communication from Edmund Sée and Paul Sée.*)—" The application of enamel to certain friction " surfaces of looms for weaving."

" This invention consists in providing those metallic surfaces " which are exposed to a rubbing action or friction against " leather, as more especially the guide bars for the buffalo hide " drivers or pickers, with a covering or coating of enamel, glass, " or other vitreous substance, whereby the friction is reduced and " the application of a lubricant rendered unnecessary."

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 13.—N° 2654.

ROSSETTER, WILLIAM.—" Improvements in looms." This invention consists in improvements upon a former invention for which Letters Patent were granted to John Bullough and the present patentee, A.D. 1866, No. 1. The object of the present invention is to simplify the mechanism for "changing self-actingly " the shuttle in which the weft is broken or absent for another " shuttle with the weft ready for weaving without stopping the " loom."

One improvement consists "in dispensing with the enlarged " shuttle boxes containing several shuttles at the ends of the " slays of the looms, and employ for each loom only one shuttle " at the time working to and fro on the slay." To the ordinary weft fork holder is connected "a lever for giving motion to a rod " or tube extending across the loom underneath the breast beam, " when on account of the breakage or absence of weft the ordi" nary sector hammer catches the hook of the weft fork." At one or both sides of the loom is fixed "a bracket having a slide " and stud or a shaft carrying a compound lever with two or more " arms, and to one or both ends of the rod or tube underneath " the breast beam is fixed a lever for calling into action the com" pound lever when there is breakage or absence of weft, and " bringing one of the arms into position to be acted upon by a " tappet on the tappet shaft, or a projection on the slay, and give " vibrating motion to the compound lever for enabling one arm " of the compound lever, or a lever at the back of the slay, to " move a hinged shutter slide at one end of the slay for allowing " the empty shuttle to fall through a space in the slay into a " receptacle, and at the same time allow another arm to bring " forward a fresh shuttle with weft ready for picking; and " another mode of preventing an empty shuttle from passing to " the opposite box is to have an additional lever on the rod or " tube below the breast beam, working a projection or arm in the " slay, and pushing the shuttle into a receiver."

Another improvement consists "in the employment of a " creeper or plain table and box on the breast beam or loom side " opposite to the front of the slay, for holding a number of " shuttles with weft ready for being self-actingly placed on the end " of the slay, when breakage or absence of weft takes place. " This creeper or table is placed in such a position that the " weaver can see when the shuttle or shuttles are about to be " needed, the shuttles remaining stationary until absence of weft " is indicated, which arrangement enables fresh shuttles to be " supplied to the creeper or table with greater facility and " despatch than when moveable shuttle boxes are used, and by " causing the shuttle with absent or broken weft to fall out at

" one end of the slay, and supplying a fresh shuttle at the other " end of the slay more time is allowed than if both operations " took place at one end of the slay."

" Another improvement consists in the employment of a knife, " which is brought into action at the required time for cutting " away the ends of weft from a spring holder, which holds each " thread of weft until the shuttle has gone across and made a " pick, and thereby preventing the ends of weft from coming in " contact with the weft fork."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1866, October 15.—N° 2659.

LAKE, George, junior.—This invention relates to the sizing of cotton warps, and " consists in passing the cotton warps first " through the size trough, containing size only, at the boiling " temperature, from which trough they pass through pressing " rollers, and are thence immediately conducted through a second " trough, containing grease only; also at the boiling temperature, " they are then passed through a second series of pressing rollers " to squeeze out the superfluous grease, and are then dried by " being passed over the ordinary drying cylinders."

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 16.—N° 2668.

BLAIN, James.—" Improvements in finishing yarns and threads " used for weaving and sewing purposes." The patentee claims, —" The system of finishing yarns and threads by means of friction through solid saponaceous compounds however made and " however applied, and finishing yarns and threads by melting " saponaceous compounds, and then freezing and polishing " them,"

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 17.—N° 2682.

HATTERSLEY, Richard Longden, and SMITH, John.—(*Provisional protection only*.)—The inventors say :—" This invention relates to certain peculiar constructions and arrangements " of apparatus for operating healds or heddles in power looms, " which can be worked at a greater speed and with a greater

" steadiness of action than is generally obtained with heald
" machines or jacquards. We accomplish this by a series of bell-
" crank levers, equal in number to the number of healds or
" heddles employed. The bell-crank levers are hinged upon a
" fulcrum or shaft, supported in suitable bearings, one arm of
" each lever is attached to one of the healds or heddles, and the
" other is hinged to the middle of a swing bar, to each end of
" which swing bar is hinged a hook or catch capable of taking
" on to a knife or lifting bar when placed in suitable position.
" We employ two knives or lifting bars, which are operated
" simultaneously in opposite directions by means of levers, and
" a connecting rod attached thereto, and to a crank or eccentric
" fixed on the tappet shaft, or elsewhere, from which the same
" speed can be obtained. The hooks or catches are arranged in
" two sets, so that each catch in each set may be operated upon
" by its proper knife, and each catch is selected and placed into
" or out of position by means of a cylinder and peg legs or cards,
" which require moving every alternate pick only, and operate
" upon a series of levers according to their arrangement, which
" levers actuate a series of slidable wires or pins placed in contact
" with the hooks.

"In the above arrangement we require springs or weights for
" pulling down the healds. This apparatus is also capable of
" adaptation for working the healds or heddles so as to dispense
" with springs or weights for pulling down the healds, for which
" purpose we employ double the number of bell-crank levers,
" swing bars, hooks, or catches, and knives or lifting bars, one
" half of these parts being arranged to raise, and the other part
" to depress the healds by connection with the usual levers
" underneath the healds."

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 18.—N° 2693.

GEDGE, William Edward.—(*A communication from Charles Devillaine.*)—" Certain improvements applied to jacquard looms."

"Claim is made to the application of much thinner cards than
" those hitherto used, as well as to the processes, consisting:—

"Firstly, in leaving the lifting wires free before the compression
" ('réfoulement').

"Secondly, in seizing the lifting wires by means of the leesh
" box during the compression.

"Thirdly, the application of the retreating grate or lattice to "the method herein described of independence of the pressure "movement with all the variations in the applications as well as "their general arrangements.

"Fourthly, that of the mobility, no matter in what way the "point or one of the points of junction or attachment of the con- "necting rod, having for object the unleashing and permitting "the cylinder ('manchon') to have a movement independent of "that of the batten, whether this mobility be obtained by means of "of a sliding slot, springs, counterweight, hinges, or other mechan- "ism, and whether it be adopted at the connecting rod, to the "batten, to the support of the connecting rod, or to the cylinder.

"Fifthly, further, as the particular combinations by which this "improved unleashing may be effected, while essentially the same, "vary too much in form to be mentioned, they being however all "comprised in the general means equally applicable to looms with "connecting rod and those with cranked or elbow piece.

"Claim is therefore made in a general manner to the application "of the system herein set forth to all jacquard looms, no matter "what their form, that is to say, to every combination which "allows the leash box:—

"Firstly, an ascending movement in which it may take the "lifting wires during the compression.

"Secondly, a descending movement in which it will leave the "lifting wires before the compression.

Sixthly, and lastly, claim is made generally to all apparatus "having for object to interrupt the movement of the batten "during the rise and fall of the leash box, whether to prolong "the pressure effected, or to reduce the pressure, and all combi- "nations tending by these means to obtain the unleashing, "forming the principle of this invention, namely:—

"Firstly, to reproduce the compression ('réfoulement') only "when the lifting wires no longer hold to the leash box, and that "they rest on the collar board.

"Secondly, to cease the compression only when the lifting "wires have been seized and lifted by the leash box."

[Printed, 1s. Drawing.]

A.D. 1866, October 19.—N° 2710.

BIGELOW, Erastus Brigham.—"The object of this invention "is to facilitate the operation of one or more series of shuttles

" in power looms, and also to give a greater range in the number " of shuttles which may be used, and in the order in which they " may be changed. For this purpose the shuttle boxes are dis- " connected from the lay, and supported by suitable framework " at the sides of the loom."

The patentee claims:—"First, in power looms having their " shuttle boxes detached from the lay, and guided by stationary " guides, constructing the part of the lay which receives motion " from the lay shaft separately from the parts which carry the " reed and from the shuttle race, and attaching them by latch " levers, which when a shuttle fails to enter its box may be " tripped by the action of the protector motion, and thus allow " the part of the lay which receives motion from the lay shaft to " move forward without moving the parts which carry the reed, " and thus prevent breaking the machinery."

" Second, the combination of changeable reciprocating shuttle " boxes working in stationary guides with a table-formed plate " at the side of the loom."

"Third, in power looms having their shuttle boxes detached " from the lay," " the employment of a series of shuttle holders " on one or both sides of the loom which carry the reserve " shuttles, and work in co-operation with two or more recipro- " cating shuttle boxes from which the shuttles are thrown, and " by which they are taken from and returned to the shuttle " holders."

[Printed, 3*s.* 10*d.* Drawings.]

A.D. 1866, October 31.—N° 2820.

KEIGHLEY, John.—"This invention relates, firstly, to means " of working or operating rotary change shuttle boxes in that " class of looms technically known as 'pick and pick' looms."

The "improvements consist in the application of a double- " cranked rod or rocking shaft with a crank at each end extend- " ing across the loom so placed and arranged that when the " jacquard peg lags, or other usual indicating apparatus actuates " the hook or catch which connects with the turning lever at one " end of the loom for turning or operating one set of boxes, it " also actuates this cranked rod at one end when the crank at the " other end acts upon the hook or catch which connects with " the turning lever at the opposite end of the loom, and thus the

" two sets of boxes are operated simultaneously by one jacquard " peg lags or other indicating apparatus.

" Secondly, this invention relates to the method of constructing " rotary shuttle boxes." The " improvement consists in having " each set of rotary boxes made of metal, by preference in one " casting, and suitably fitted up by usual means."

[Printed, 10*d*. Drawing.]

A.D. 1866, October 31.—N° 2822.

HOLDEN, RICHARD.—" Improvements in looms for weaving." This invention consists " in supporting the 'back beam' on " springs, the said springs being supported on brackets fixed to " the side frames (or other convenient part) of the loom."

[Printed, 10*d*. Drawing.]

A.D. 1866, November 8.—N° 2905.

KERSHAW, THOMAS.—This invention relates " to that portion " of the 'taking-up motion' of a loom for weaving ordinarily " termed the 'emery roller,' and consists in a novel adaptation " to the said roller whereby the coating of emery ordinarily " applied to the surface thereof may be dispensed with." At the back of the said roller is applied " another roller, preferably " of smaller diameter, and composed of or covered with a substance of an elastic or partially elastic character, such as caoutchouc, gutta percha, leather, cork, woven or felted fabrics, or " other suitable material, the journals or bearings of the said " additional roller having sufficient play in their supports to " admit of its resting upon or in close contact with the surface " of the main roller. The woven cloth is passed around the main " roller to the point of contact with the additional roller, over " which last-named roller the cloth is passed and secured to the " cloth beam in the usual manner, the action of the above-described " combination of rollers being such that the hold upon the cloth " increases with the strain upon or weight applied to the warp."

[Printed, 8*d*. Drawing.]

A.D. 1866, November 9.—N° 2918.

CRICHTON, DAVID, CRIGHTON, DUNCAN, and DONBAVOND, WILLIAM.—(*Provisional protection only.*)—" This invention relates to the shuttle binders in the boxes of looms."

Instead of the ordinary swell motion the inventors employ "at " each end of the lathe or batten a curvilinear oscillating pressure apparatus actuated by the shuttle when it boxes clear of " the warp so as to receive, press against, and travel with the " shuttle to assist in checking its progress before meeting the " pickers, and enabling it to have an easy entrance and delivery " from the boxes one to the other when driven by the pickers."

[Printed, 6*d*. Drawing.]

A.D. 1866, November 14.—N° 2978.

WHITEHEAD, James.—This " invention is applicable to looms " in which one or several shuttles are used, and is intended to " supersede or dispense with the use of all or part of the long and " often cumbrous checking chains, now generally used for producing patterns by the weft; it is also intended, in connection " with a suitable 'index machine,' to vary at pleasure the make " of cloth to be woven. It consists, in the first place, of a " combination of mechanism, which may be called a 'counter' or " 'calculator,' capable of being quickly adjusted or set to any " required number, which number is 'worked' off by the loom " pick by pick until the whole is computed. The motion which " sets the calculator also selects the shuttle desired, or may be " made to put in action any existing mode of doing so, and at " the same time is available when required to alter the make " or texture of the fabric. The counter or calculator consists of " a series of ratchet wheels of ten teeth each, working loose on a " spindle. On one side of each ratchet wheel is a guard, having " an opening at point only. Upon these guards rest as many " levers, which, being fixed on one axis, can drop only when the " openings on the guards are all in one line under the levers. " The ratchet wheels are driven by as many pauls or catches, " vibrating together on a frame. The first catch propels the first " ratchet wheel one tooth at each vibration, and so computes the " units. The second catch is prevented from acting upon the " second ratchet wheel by a guard upon the first wheel, except " once in each round of the first, so that the second ratchet wheel " is propelled one tooth for every ten vibrations, thus computing " the tens. The same arrangement applies to the rest of the " series, which can be carried as far as may be required, the third " computing hundreds, fourth thousands, and so on. Loose on " the spindle carrying the ratchet wheels, and connected each by

" a spring catch, are as many pinions worked by racks. On the " latter are stepped or graduated slides ; these are acted upon by " a series of fingers, any number of which can be raised in succession by means of a chain of lags and pegs, or bowls, or other " equivalents, or the slides may be acted upon directly by pins " fixed in a suitable chain, the whole being mounted on a swing " or sliding frame, to which a single stroke or motion is communicated from any convenient part of the loom whenever a " change is to be made, the connection being formed by the " falling of the levers in the openings of the guards already mentioned. Instead of ratchet wheels intermittent wheels may be " used if desired.

" The motion for effecting the change of shuttle consists of two " graduated sliding plates working over each other with the steps " or graduations reversed, acted upon by hooks, and connected " to the shuttle box in any convenient manner, any one of the " hooks being depressed into one of the steps of both slides by " one of the fingers above described, or by one or more separate " chains of lags and pegs or their equivalents acting with or independently of the counter. A stepped slide acted upon by one " of the fingers or pins before named, and held by a catch, is " used for raising or lowering the jacquard barrel of a jacquard " or index machine, each of the cards of which are prepared for " producing different textures of cloth."

[Printed, 10*d*. Drawing.]

A.D. 1866, November 14.—N° 2981. (* *)

BONNEVILLE, Henri Adrien. — (*A communication from Lucien Tracol-Faye.*)—(*Provisional Protection only.*)—" A mode " of treating the bark of the mulberry tree for the production of " a new fibrous substance or vegetable silk."

The bark or rind of the young stalks of mulberry trees " is taken " off at the time when the sap rises, or by steeping the stalks in " hot or cold water." The outer coating of this bark is then removed by dipping the bark into hot water, and such bark, "thus " cleared of its outer coating, is next boiled in water to free it " of a second green bark under the first, and a pellicle next to " the wood ; the matter which remains is of a fibrous description " mixed up with a gummy substance," which fibrous matter is submitted to repeated washings to cleanse it from such gummy substance, and is then fit for "weaving and spinning." Machinery "in ordinary use can be employed for these purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1866, November 15.—N° 2990.

LAKE, William Robert.—(*A communication from George Crompton.*)—This invention relates to means for operating the heddles of fancy looms. Attached to the framing on one side of the loom are two brackets, in which is mounted a shaft supporting between the brackets a series of vertical heddle levers; to the upper end of each of these levers is attached a wire, which extends over a pulley at the top of the loom frame, down through the frame under another pulley, and is attached to the lower end of the same lever. The harness frames are suspended by these wires between the upper and lower pulleys. Above the shaft of the heddle levers is another shaft carrying two curved arms at each end, one projecting on one side, the other on the reverse side, of the heddle levers; both pairs of curved arms carry "clamp bars," which are moved in alternately opposite directions by a crank and connecting rod acting on a rocking lever attached to the curved arms. The clamp bars act upon hooks attached in opposite directions to a latch hung in a mortice in each heddle lever. The hooks are selected, so as to be acted upon by the clamp bars, by a cylinder with pins.

[Printed, 2*s*. Drawings.]

A.D. 1866, November 15.—N° 2993.

ATKINSON, William Newcombe.—(*Provisional protection only.*)—"This invention relates more particularly to power looms "for weaving linen fabrics, whereby finer cloth can be woven in a "power loom than heretofor. According to this invention it is "proposed to employ in a linen power loom reeds having dents "or splits, composed of cane (as used in a linen hand loom), in "lieu of iron or steel, as heretofore used in power looms; it is "further proposed to employ in linen power looms a weighted "shuttle running on wheels or rollers, similar to those used in "hand looms. The sleigh is suspended by perpendicular arms "from an overhead rocking tree, in lieu of being attached to the "usual sword arms secured to a rocking tree at the foot of the "the loom; it is further proposed to adopt a combination of "mechanism for driving the sleigh as shall admit of the beat up

" or traverse of the sleigh over the yarn being regulated or varied
" at will without interfering with the cranks which give motion to
" such sleigh.

" One mode of effecting this object consists in the employment
" of perpendicular rods or links, which are connected at their
" upper ends directly to the cranks, whilst their lower ends are
" guided in any suitable manner to enable these rods to move up
" and down and laterally with the revolution of the cranks. It
" is to these rods that the sleigh is connected by means of connecting rods, which are adjustable at one end up or down the
" perpendicular rods, so as to be capable of being brought nearer
" to or further from the cranks; the nearer they are to the cranks
" the greater will be the motion of the sleigh, and vice versa."

[Printed, 4*d*. No Drawings.]

A.D. 1866, November 16.—Nº 3003.

SELLERS, James.—(*Provisional protection only.*)—The inventor says:—"This invention relates to the shedding motion of looms
" for opening the warp when the shuttle has to pass across the
" slay, and closing it when the weft has to be beaten up. Instead
" of two or four leaves of ordinary healds, with eyes for the whole
" of the warp threads to pass through, I employ one or two leaves
" of healds for half of the warp, and a moveable rod extending
" across the loom for the other half, the latter threads passing
" between the healds and independent of them, the ordinary eyes
" of the healds being dispensed with by causing the tops of the
" lower shanks of the heald cords or wires to act when required
" upon the threads. Instead of two leash rods I employ only
" one, fixed in a bracket at each end of the loom, and behind this
" rod I place a sliding frame or bar, extending across the loom,
" and pass half the threads over the frame or bar, and the other
" half under. The healds and moveable rod are moved down
" and up by the ordinary heald tappets and levers, or other well
" known means, and the sliding frame or bar at the back of the
" leash rod moves up and down at the same time by the tension
" of the threads. When the healds are depressed they bring
" down one half of the threads and form one half of the shed, the
" other half of the threads are raised by the sliding frame or bar,
" and form the other half of the shed, the moveable rod being
" lifted at the same time, to enable the threads to rise."

[Printed, 4*d*. No Drawings.]

A.D. 1866, November 16.—N° 3009.

NEWTON, Alfred Vincent.—(*A communication from Morris Opper.*)—"A new manufacture of ladies' skirts." "To produce "the improved skirt the cloth is woven in a suitable loom, such "as are used for what is known as convex weaving. The warps "are mounted in the loom to weave a cloth of a sufficient width "for the length of a skirt, and the heddles are operated so as to "suspend the weaving operation across a portion of the width at "intervals whilst it progresses across the other portion of the "width at intervals, varying the width of the part where the "weaving operation is suspended, and at each operation the cloth "is to be taken up only along that portion of the width where "the weaving takes place. In this way the cloth may be woven "of any desired varying length along the different portions of "the width to obtain the required form for a skirt without sewing "in gores. Where the hoops are to be inserted the warps are "operated in manner well known to weavers, so as to make the "cloth of two thicknesses for the insertion of the hoops."

[Printed, 6*d*. Drawing.]

A.D. 1866, November 24.—N° 3096.

JOHNSON, William Beckett.—"Improvements in arranging "and driving the shafting of 'loom sheds.'" The patentee divides the looms into sections, and uses a separate steam or other motive power engine for each section. He proposes "to "dispense with the shaft which usually extends along the end of "the shed, and from which the 'cross shafts' are driven, and "to place the motive power engines in a line corresponding to "such end, each crank shaft being connected direct to a cross or "line shaft from which a section or 'bay' of looms is driven."

[Printed, 10*d*. Drawing.]

A.D. 1866, November 24.—N° 3098.

HASELTINE, George.—(*A communication from William Greenwood Hartley.*)—This invention relates to "looms for manu-"facturing velvets and other fabrics which are made double to "be afterwards divided in two pieces."

The chief portion of the invention "consists in a circular knife "which has a rotary motion, and also moves transversely across

" the pile of the fabric as it is fed in one piece (after being cut)
" between guide bars against the knife."

The invention "also consists in certain mechanism for guiding
" and giving the required tension to the tuft forming yarn, and
" for separating the binder warps;" and "in mechanism for
" winding or taking up the two portions of the fabric after being
" cut."

The patentee claims "a circular revolving knife" "for dividing
" the pile of the fabric."

"Parallel guide bars," "for regulating the length of the pile"

"The combination of the parallel guide bars" "with a circular
" revolving knife."

"A guard finger or bill" in combination with a circular revolving knife.

"Making the mechanism by which the knife is revolved and
" traversed independent of that by which the loom is operated."

"Rollers for guiding and separating the two sets of binder
" warps."

A roller "for guiding the tuft forming yarn."

A roller hung in arms projecting from a weighted shaft, for producing the required tension of the tuft yarn.

The cloth beams with their cog wheels in combination with a vertical shaft, with its worm gears and ratchet wheel for producing the required take up of the two pieces of the fabric.

"One or more stones" "for sharpening the circular knif
" during its revolution and traverse."

"A wire heddle provided with two eyes, for the purpose of
" shedding two sets of binder warps."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1866, December 3.—N° 3167.

NUTTALL, James.—" Improvements in looms." This " in-
" vention consists in a jacquard treading motion with one or
" more rows of needles, each needle having two eyes to admit of
" two hooks. The hooks are connected to the jacks one on each
" side, and at an equal distance from the centre or pin of the
" jacks. The needles are acted on by springs at one end, and at
" the other end by lags and pegs revolving round a cylinder, to
" one end of which is fixed a bevel star wheel and turned by a bevel
" intermittent wheel on an upright shaft driven by bevel wheels,

" to which motion is given from the crank shaft. The hooks are " lifted by a grife, one end of which draws the shafts up, and the " other end draws the shafts down. The grife being lifted by an " eccentric on the crank shaft or with the cranks.

"Also in a tappet treading motion with one, two, or more " picks to the round, the risers on the tappet plates are used as " both risers and fallers. The treadles being acted on by lags and " pegs revolving round a cylinder with a star wheel at one end, " and turned by the tappet wheel which is made intermittent, " and to which motion is given from the pinion wheel on the " crank shaft, and for those shafts that have to fall there are pegs " in the lags to hold the treadle bowls above the points of the " risers, and for the other shafts that have to rise there are no " pegs in the lag, consequently the treadle bowls go under the " points of the risers.

"Also in doubling the first mentioned 'jacquard treading " 'motion.' "

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1866, December 4.—N° 3184.

BROADBENT, JOHN.—"Improvements in the manufacture " of 'weft forks' used in power looms for weaving cotton, worsted, " or silk, or any suitable material.

"The object of this invention is to make such 'weft forks' " lighter and more economically than hitherto, and at the same " time to dispense with a great amount of friction, and thus give " more freedom of action.

"The invention consists principally in making the joint or " centre upon which the fork is suspended by turning up two " lugs or ears, one at each side of the fork, instead of making it " of a bush or boss as long as the width of the fork (as is usually " done) and forming a hollow or recess across the fork, so that " the pin upon which it is hung only bears or touches in the lugs " at each side. 'Weft forks' may thus be made by stamping " out plate or sheet metal to the required form, and bending up " the lugs at each side and the catch at one end and the prongs " at the other end, they will then require only a small amount of " finishing."

[Printed, 8*d*. Drawing.]

A.D. 1866, December 4.—Nº 3190.

PARAIRE, Edward Louis.—The patentee says:—"The chief "object of this invention is to economize the power required to "drive the shuttles of pneumatic looms. To this end I have "designed a novel arrangement of parts for admitting the compressed air behind the shuttle for the purpose of propelling the "same through the open shed and for reversing the direction of "the current of air to return the shuttle through the next open "shed. In the centre of the sley beam I fix an air supply tube, "which I connect by means of a flexible pipe to a compressed "air chamber or an air main leading therefrom. The discharge "of air from the supply tube on to either end of the shuttle is "governed by valves (one at each end of the sley) which are kept "to their seat by coiled springs, and are raised by the action of "adjustable tappets to allow of the discharge of a column of "compressed air on to the end of the shuttle. The discharging "ends of the air passages are brought into a line with the axis of "the shuttle. I also provide elastic stops or friction surfaces "which serve to arrest the progress of the shuttle by retarding its "motion when it has arrived near the end of its course."

[Printed, 8*d*. Drawing.]

A.D. 1866, December 6.—Nº 3217.

HASELTINE, George.—(*A communication from Benjamin Oldfield and Edward Oldfield.*)—These improvements are "especially "adapted to looms for weaving a number of pieces simul"taneously."

The shuttle "is made of thin metal plates, which are united "by solder or other suitable means." It is provided with check "pieces or other suitable means for receiving the centres on which "the reel turns; this reel is used in place of the ordinary quill." "The tension of the weft thread is regulated by a spring, which "is inserted loosely in one of the pins or ends of the shuttle." "A tension spring of the ordinary construction may be applied, "and a check spring is combined with the said tension spring to "prevent the reel from giving off more weft than required. The "operation of introducing and removing the reel is facilitated by "giving to the shuttle a tapering shape from its eye towards its "rear edge, and by providing the same with a spring catch or "moveable bridge piece, which can be sprung back or removed so as to release or admit the reel. The shuttle is carried through the shed of the warp by shuttle carriers, which move back and forth on guide bars secured to the batten; these guide bars form cams which act on loose pegs in the shuttle carriers, and cause them to rise or fall at the proper intervals, and to catch in or release the ends of the shuttle." "The shuttle carriers are attached to slide bars, which move on top of the batten in a straight line without rise and fall, and the ends of which form toothed racks, which gear into toothed wheels in such a manner that by the action of the said toothed wheels the required reciprocating motion is imparted to the slide bars, shuttle carriers, and to the shuttle." The teeth of the racks "are produced by corrugating a strip of sheet metal. Suitable cams attached to or formed by the toothed wheels act upon stops on the slide bars, and prevent the same from moving or being moved prematurely.

"The motion from the driving shaft to the shuttles is transmitted by an ordinary 'marionette motion' or any equivalent device, and a pulley interposed between this 'marionette motion' or equivalent device, and the shuttle motion allows of regulating the speed of the shuttles and of reducing this speed to the smallest possible point." "The motion of the main shaft is regulated by eccentric wheels, cams or other equivalent means in such a manner that the speed of the batten can be reduced as it is coming to."

"A parallel motion of any suitable construction is combined with the batten, so that the latter is carried in a straight line or nearly so."

"A cam or eccentric attached to or operated by the shuttle motion acts on a spring stop and depresses the same, so that when the shuttle motion is out of order the said spring stop through suitable connections acts on the belt shipper, and the driving belt is shifted from the fast to the loose pulley."

"A suitable brake is combined with this stop motion."

"The harness motion is composed of arms which are attached at one end to a lever and operated by a circular or segmental chain wheel or crank in such a manner that each harness frame can be readily raised or depressed as the pattern chain may indicate. The harness or heddles are operated by cranks capable of being turned independently of each other when carried either partially or entirely to the end of their throw,

" the same being operated by the pattern chain. The said harness " or heddles can be easily locked for any number of picks, as " indicated by the pattern chain. The wheels which carry the " arms of the harness motion are operated either by chains and " hooks or by racks and pinions, and the motion of the harness " is rendered irregular by elliptical or eccentric wheels or any " equivalent means which will produce the same effect, so that " the strain on the warp thread is reduced, and the speed of the " loom can be increased in proportion. The pins or studs of the " pattern chain are supported by elastic cushions or springs, and " they are provided with T-headed shanks, which pass through " oblong slots in the leaves of the pattern chain. These leaves " are provided on their inner surfaces with ridges or cavities extending at right angles to the oblong slots, so that by depressing " the pins or studs and turning them one-quarter round their " T-headed shanks are caused to catch between the ridges or in " the cavities, and the said pins or studs can be readily inserted " or removed by pressure."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1866, December 7.—N° 3231.

SMITH, ROBERT, and RAMAGE, JOHN.—"This invention has " for its essential object the production or manufacture of a " special kind of yarn to be especially and particularly employed " for the weaving of that class of cloths known as 'winceys' or " 'linseys.'" "The result of using this peculiar yarn is the " production at intervals of projecting spots on the cloth, it being " understood that it is only intended to claim the use of this yarn " for the production of the spots in that class of cloths in which " the warps are of cotton and the weft composed of the particular " yarn herein-before referred to, constituting a cloth of the " 'wincey' or 'linsey' class, but differing from the ordinary " goods of this class in having the projecting spots woven into it, " the ordinary cloths being of plain texture.

" The mechanism by which the spots projecting on the yarn " are produced, consists of a framework with a set of spindles or " bars for carrying the pirns or bobbins on which the 'ground " yarn' is carried; the ground yarn (in the case of a single yarn " to which the following description refers, it being understood " that several yarns may and are to be so treated) is then led off " to a tubular stud carried in the framework of the mechanism;

" the yarn passes through the tubular stud, and is thence conducted between rollers to the bobbins or reels on to which it is wound. On the tubular stud a second pirn is carried and caused to revolve, the yarn on it being that by which the projecting spots are produced on this 'ground yarn.'

" When the mechanism is set in motion both pirns revolve, and the end of the spotting yarn is tied or fastened to the 'ground yarn.' From what has been said it is evident that the pirn carrying the spotting yarn revolves round the 'ground yarn,' so that as the mechanism is in motion the spotting yarn becomes twisted round the 'ground yarn.' "

[Printed, 1*s.* 10*d.* Drawings.]

A.D. 1866, December 11.—No. 3254.

CLAYTON, Robert, RAPER, James, GOULDING, John, and HOWARTH, William.—" Improvements in looms for weaving." This " invention consists in stopping the tappet shaft of swivel looms while the swivel shuttle are producing the pattern, and in again starting the tappet shaft while weaving the plain or figured ground between the patterns, or when weaving the ground during the process of producing the pattern."

The patentees " place a cam on a crank shaft acting on a lever which rises at every pick and moves the swivel shuttles into position when required for weaving the pattern, at the same time the catch box on the tappet shaft is thrown out of gear to stop the said tappet shaft. The above lever is connected to a second lever, which is actuated when required by the jacquard; this second lever is keyed on a shaft to which an elbow lever is fixed, one arm of which lifts a bar for throwing the catch box on the tappet shaft in and out of gear, the other arm is connected to a lever by which the shaft for moving the swivel shuttle frame laterally and vertically is actuated; upon this last-mentioned shaft is another lever for moving the swivel racks up and down and in and out of gear. The elbow lever above referred to, instead of actuating the catch box bar, as described, may be connected to another elbow lever for obtaining the same results. The bar or elbow lever described must be weighted to counterbalance the swivel racks and shuttles so as to hold them up when required."

[Printed, 10*d.* Drawing.]

A.D. 1866, December 11.—N° 3257.

BROOMAN, CLINTON EDGCUMBE.—(*A communication from John Bailey.*)—"This invention consists in a new 'taking-up' " motion in looms for weaving." On the cloth beam is keyed a wheel driven by a worm. " The worm is mounted upon the " loose part of a catch box in such a manner as to admit of the " loose part of the catch box having a lateral movement and a " backward and forward rotary motion, taking the worm with it " in its backward and forward rotary motion only. On the end " of the loose part of the catch box and fastened to it is a small " disc to be used as a handle, so that the weaver can ungear the " catch box whenever it is necessary to 'let back' or 'draw up.'" " The loose and fast parts of the catch box are held in gear by a " spring, and are mounted and fastened upon a shaft, which is " held in its place in the following manner :—To the side of the " loom is screwed or bolted a bracket with two projecting arms, " one end of the shaft passing through a step which swivels in " one of the arms, and another part of the shaft lying in an open " slot in the other arm. The shaft is also partially embraced by " the end of one arm of a bell-crank lever which holds the worm " and toothed wheel in gear; the fulcrum of the bell-crank levers " works upon a stud screwed or fastened to one of the projecting " arms of the bracket; the other arm of the bell-cranked lever " forms a handle, held in its place by a catch screwed to the " 'press beam" of the loom. The object of the handle and " lever is to admit of the weaver's uncoupling the worm and " toothed wheel on the cloth beam at any time;" "the said shaft " has also mounted loosely upon it a quadrant wheel, upon the " side of which are mounted catches which work in the teeth of " a ratchet wheel keyed upon the aforesaid shaft, and upon the " end of the aforesaid shaft is keyed a break pulley, partially " round which is wound a chain, the ends of which are loosely " screwed to any convenient part of the loom, so that any inaccuracy through vibration or by the wheels slipping back may " be prevented. Working in the teeth of the quadrant is a rack " held in its place by a bracket bolted to the side of the loom, in " which bracket is a slot, so that the rack working in the slot " can have imparted to it a reciprocating rectilinear motion. The " rack has made with it or fastened to it a nib or projecting bit, " under which works one end of a lever; the fulcrum or other

" end of the lever works upon a stud screwed to a bracket bolted " to the side of the loom, or to the back rail of the loom; " screwed to the loom is a stud, upon which works a friction " bowl, which rests upon a cam or excentric keyed to the tappet " shaft of the loom." "The tappet shaft of the loom carries " round with it the cam or excentric, giving to the lever an " upward movement, and the lever by means of the nib or pro- " jecting bit takes with it the rack, both the lever and rack " following the cam or excentric in their downward movement " by their own weight or gravity; the rack gives to the quadrant " wheel a reciprocating motion, and the quadrant wheel by means " of the catches imparts to the ratchet wheel an intermittent " rotary motion, thereby communicating a like motion to the " shaft, catch box, and worm."

"Parallel with the cloth beam and resting upon it is a rod or " bar, the ends of which work in slots in two brackets bolted one " to each side of the loom, or to the 'press beam,' so as to allow " the rod or bar to rise as the cloth increases upon the cloth " beam. Attached to the rod or bar is another rack, the teeth " of which work into the teeth of a pinion wheel, which is made " with or fastened to a half heart wheel, and the half heart wheel " having teeth upon its periphery gears into a curved rack which " lies alongside, and is connected with a movable inclined plane, " or instead of the half heart wheel having teeth upon its peri- " phery, it can be made without teeth, in that case a chain takes " the place of the curved rack, one end of the chain being " attached to the outer extreme point of the half heart wheel, " and the other end of the chain being attached to a standard " fastened to or made with the base of the movable inclined " plane; the movable plane is hinged to its base at one end, and " the other or raised end is fastened to the standard, which is " made so that the movable inclined plane can be set and held at " different gradients; the base of the inclined plane slides in a " slot made in a fixing screwed or bolted to the front rail of the " loom, and by which the movable inclined plane is held in " position. Attached to the first-mentioned rack and parallel " with it is a screw, on which works a nut with a projection made " upon it, which projection as the rack descends falls upon the " movable inclined plane, so that the person working the loom " can by turning the screw give the first-mentioned rack a greater " or less fall, thereby making the cloth 'thinner' or 'thicker' as

" required, and by giving the movable inclined plane a greater or " less gradient accordingly the cloth is maintained at one thick- " ness throughout the piece, the use of change wheels or pinions " being thereby obviated; but change wheels or pinions can also " be used with this invention." "As the cloth increases upon " the cloth beam it raises the rod or bar, the rod or bar taking " with it the rack which is attached to it, and the rack gearing " into the pinion attached to the half heart wheels draws them " round, and the half heart wheel by means of the curved rack " or chain draws the movable inclined plane under the projection " of the nut, which works upon the screw attached to the first- " mentioned rack, thereby stopping the descent of the first-men- " tioned rack sooner, as the movable inclined plane is drawn " more or farther under the projecton of the nut, or as the cloth " increases upon the beam.

" Another part of this invention consists of an arrangement for " stopping the action of the foregoing taking-up motion the " moment the "setting-on rod' of the loom is thrown out of " gear." A wedge is attached to one end of a rod, the other end of the rod is attached "to the end of a lever, having its ful- " crum upon a stud screwed to a bracket bolted to the loom side, " or the stud can be screwed to the loom side without the " bracket; the other end of the lever works in a slot formed for " that purpose in the 'setting-on rod.'" "When the 'setting-on " 'rod' is thrown out of gear it takes with it one end of the " lever, the other end draws with it the bar or rod drawing the " wedge between the small disc fastened upon the loose part of " the catch box and one of the projecting arms of the bracket " which holds the shaft and other part in their position, thereby " uncoupling the catch box and stopping the cloth beam."

[Printed, 2*s*. Drawings.]

A.D. 1866, December 17.—N° 3311.

HALL, Henry.—This "invention relates to the preparation of " size which is employed in machines termed 'slashers,' 'tape " 'legs,' and other machinery used for sizing or dressing cotton " and other fibrous materials, and the improvements consist, first, " in the application of steam to the boiling, heating, and pre- " paration of size whilst contained in closed pipes or vessels " which is thereafter to be applied to the aforesaid mechanism " and purposes. The apparatus employed consists of a cistern

“ to contain the size from which it is pumped and forced into a “ length or lengths of straight tube or serpentine or spiral coil of “ tubing, which is by preference made of copper, and this tubing “ is enclosed within another tube of larger diameter to which “ steam of any necessary heat is supplied, and which thus act as “ a steam jacket, being also fitted with a steam exit or ‘blow off’ “ pipe. The tubing containing the size is furnished with a stop “ tap by which the size is retained in the tube until properly “ heated, and by which it is discharged for use, and an overflow “ safety valve or tap is applied so that should the force pump “ supply too much size it escapes again into the cistern.”

[Printed, 8*d*. Drawing.]

A.D. 1866, December 21.—N° 3362. (* *)

HALL, Robert, and HALL, Samuel Standring.—(*Provisional protection only.*)—“ Improvements in machinery for winding yarn and thread.”

The first part of this invention consists in a self-acting break for stopping the spindles of “pirn winders” when the yarn or thread breaks. This apparatus consists of a wedge connected to a “break,” and so arranged that as long as the yarn or thread continues to be supplied “the wedge is down and the break is “ free from the wharve, but when the yarn or thread breaks a “ lever drops and brings a catch in contact with a hook connected to the lifter, which in rising draws up the wedge and “ applies the break to the wharve. When the break is applied “ a second catch falls into a notch at the back of the wedge, and “ holds it until released by the operator. By this means each “ spindle is stopped separately while piercing-up.”

The second part of the invention also relates to “pirn winders,” and consists in giving the requisite up-and-down motion to the lifters “by means of a worm on the tin drum shaft gearing into “ a wheel on a horizontal shaft to which is fixed a grooved cam, “ which gives a longitudinal to-and-fro motion to the side bar,” which bar “has slots taking into studs on levers fixed to the “ shafts of the lifters;” the inventors stating that by this means the machine is considerably simplified and the usual heart motions are dispensed with.

Another part of the invention relates to “drum winders,” and consists “in giving motion to the traverse guides by a worm on “ the drum shaft gearing into a wheel on a diagonal stud,” there being fixed to this wheel a grooved cam "giving motion to a " slide bar, on which are fixed two racks, which give motion to " two quadrants. A stud on the slide bar takes into a segmental " slot in a lever projecting from each quadrant," these segmental racks acting "on bowls connected to the traverse rods," and giving "the requisite motion to the traverse guides for distributing " the yarn or thread on the bobbins."

[Printed, 4*d*. No Drawings.]

A.D. 1866, December 22.—N° 3385.

BELTZER, François.—(*Provisional protection only.*)—"Im- " proved machinery or apparatus for sizing cotton, flax, hemp, " and other thread or yarn." The machine first described, consists of a circular pan for stirring the size and preparing it for the sizing machine. In the centre of the pan is a hollow shaft which reaches about half way down the pan, this shaft carries two stirers; inside the hollow shaft is another shaft which reaches to the bottom of the pan and also carries two stirers, these shafts are driven in opposite directions by two bevel wheels which gear into the same pinion placed between them. A fixed arm is attached to the side of the pan.

Another plan of a stirring apparatus is shewn in which there are three blades or stirrers, the centres of which are placed about half way between the centre and the circumference of the pan.

Another plan of size-stirring apparatus consists of a trough with a horizontal shaft, carrying three paddles running through it. The shaft slides in stuffing boxes and has alternate motion " given to it from an excentric or cam.

Apparatus is shewn for steaming the thread. The thread passing round a cylinder comes in front of small holes pierced in a steam pipe.

For fixed rods it is proposed to substitute cylinders which have a rotary motion, pieces of leather dipping in soapy water keep the cylinders clean.

[Printed, 6*d*. Drawing.]

A.D. 1866, December 26.—N° 3397.

FLETCHER, James, and CARR, William.—(*Provisional protection only.*)—This invention relates to machinery for sizing yarns. The inventors say :—

"Our improvements consist, firstly, in causing the yarn or
" thread to pass through the size while subject to as little strain
" as possible by driving each beam from which the yarn is drawn
" by friction, or by frictional contact with a roller or rollers, or a
" traversing flexible or cloth, so as to deliver the yarn from them
" in a state nearly free from tension; or this part of our inven-
" tion may be accomplished by drawing the yarn or thread off
" the beams by rollers geared with the mechanism which winds
" the yarn upon the beam after it has been sized, the said rollers
" delivering the garn, so as to pass into the size very nearly free
" from tension.

"Another part of our invention relates to the mechanism for
" measuring and marking the yarn, which may be applied to
" othes measuring purposes. The mechanism hitherto used is a
" roller of fixed and uniform diameter.

" Our improvements consist in employing a drum or roller
" formed by a series of segments, bars, or surfaces which can be
" expanded and contracted radially at will by wedges, inclines,
" screws, or radiating arms, so that the measure of the periphery
" of the drum or roller can be increased or diminished to the
" greatest nicety, and the marker regulated to act when required
" without altering the gearing between the expanding drum or
" roller and the marker. The spaces between the segments may
" be covered by thin metal strips secured to each segment, or the
" segmental drum may be enclosed in an elastic cover formed of
" india-rubber, cloth, or other suitable elastic material.

" Another improvement consists in the application of counting
" apparatus or mechanism for registering the length of yarn
" passing the measuring drum or roller, this registering apparatus
" being driven by frictional contact of a pulley (gearing with the
" registering mechanism) with the periphery of the measuring
" drum or roller."

[Printed, 4*d*. No Drawings.]

APPENDIX.

A.D. 1845, June 12.—N° 10,720. (* *)

WILLIS, Thomas.—Improvements in spinning, doubling, and winding machines.

" My invention relates mainly to the application and arrangement
" of a loose bobbin, spool, or cop, which moves freely on
" the spindle of a machine generally called the pin cop or winding
" frame, in combination with a faller wire and revolving presser.
" The object of the faller wire is to distribute the yarn or thread
" on the surface of the bobbin at a more uniform tension than
" has been heretofore effected, which produces a greater uniformity
" in the woven fabric in which these cops or bobbins are ultimately
" used as the weft; cops or bobbins formed on the machine being
" designed for the shuttle of the loom."

In the sheet of claims is the following registry:—" 1st. The
" application of one or more revolving pressers to the surface of
" the yarn or thread to be wound on or taken up in spinning,
" doubling, or winding machinery.

" 2nd. The application of a moving rod or wire, in combination
" with a conical-shaped bobbin, for the purpose of compensating
" for the varying amount of yarn or thread taken up by the
" varying diameters of the cone.

" 3rd. The combination of a loose pulley or waive with a
" spindle, to which it only imparts rotation during the filling of
" the bobbin.

" 4th. The arrangement by which the pressure on the surface
" of the yarn or thread in the process of winding depends on the
" weight of the bobbin, * * * the characteristic of such part of
" my invention being the sliding of the bobbin on the spindle in
" combination with a pressure, by which such bobbin is traversed,
" as the accumulation of yarn takes place."

" The last of my improvements in machinery consists in the
" arrangement of two or more bobbins on the same spindle
" (generally placed in an horizontal position), and distributing the
" separate ends of yarn or thread on to the separate bobbins by

" one and the same traverse motion, which, in winding cotton " bobbins of sewing thread and similar operations, I consider a " great improvement, and claim as my invention."

[Printed, 10*d.* Drawing.]

A.D. 1851, October 17.—N° 13,779.

ROBERTS, Richard.—" Improvements in machinery or apparatus for regulating and measuring the flow of fluids; also for " pumping, forcing, agitating, and evaporating fluids; and for " obtaining motive power from fluids."

Part of this invention consists " in evaporating the moisture " contained in warps or piece goods, by causing the same to pass " through an enclosed heated chamber, connected with a flue or " chimney, in which rarefaction is produced by the heat from the " chamber."

[Printed, 3*s.* Drawings.]

A.D. 1851, November 13.—N° 13,809. (* *)

SMITH, William, DICKINSON, William, and PEAKE, Thomas.—" Improvements in the manufacture of chenille and " other piled fabrics."

" The novelty of this invention depends on the combination of " various details of parts and minute appliances of small gear " for accelerating the process, and executing the same in a cleaner, " truer, and more perfect manner, such parts being either entirely " new or of new combination, or possessing a new principle of " action," as explained in the several claims following :—

Firstly, the general form and character of machinery for the purposes of the invention " obtained by the introduction into " the same of the parts entirely new and the details thereof," namely, certain rollers of cast steel, got up in a frame, " and " altogether moveable, for the purpose of being withdrawn readily " for the easy insertion of smaller rollers, set to a different guage, " for the purpose of cutting the pile around the threads closer, " so as to manufacture chenille of one-eighth of an inch diameter, " or even up to an inch or more in diameter." A " groove " on each of these rollers, " and knife edge forming the width of said grooves, " is also a principal novelty ;" as also a " revolving shuttle," and certain " selvage cords ;" this shuttle throwing its shoot over the selvage cords, which carry it to the rollers, " when the twisting " threads take possession of it," and the rollers " cut it off the " selvage cords, and set them at liberty."

Secondly, the cutting of one shoot "into as many threads as "necessary," and "multiplying the number of cutting edges and "grooves for twisting threads in the rollers," "as also the number "of twisting threads and spindles," thus multiplying the threads of the chenille.

"Thirdly," "all combinations imparted to machinery for manu-"facture of chenille obtained by the introduction of the several "novelties claimed," "wherein are exhibited old forms and details "of mechanical parts in connexion with the novelties claimed, as "set forth."

"Fourthly," "all new principles of action, motions, and "manipulations whatever, imparted to machinery for the purposes "of manufacturing chenille and other piled fabrics arising from "the various parts and details of this invention that are entirely "new; and also all new principles of action, motions, and mani-"pulation whatever imparted to aforesaid machinery for said "purposes by such parts or details as are new only in combination, "and especially the mode of working described in this Specifi-"tion in connexion with the whole of the machinery described "and set forth."

[Printed, 1*s*. 4*d*. Drawings. See Mechanics' Magazine, vol. 56, p. 315.]

A.D. 1855, September 21.—N° 2124. (* *)

BRASSEUR, Usurer Joseph.—(*A communication from Theodore Clovis Lefevre and Joseph Victor Muloteaux.*)—" Improvements in "machinery for winding weft."

The machinery may be "arranged to wind numerous yarns of "weft at the same time, also to measure the length of yarns "wound, and to stop the machine and give notice by a bell when "the quantity desired has been wound."

The cop spindles are arranged at the lower part of the framing. "From each cop the yarn is conducted up and passed through "the eye of a fixed guide, then around a grooved pulley or roller "which turns freely on its axis, then the yarn is conducted to and "is passed through the eye of a moveable guide, and by it the "yarn is laid or wound on the receiving cone which constantly "rotates."

The carriage on which the receiving cones are mounted is propelled by adjustable revolving screws; springs bring the carriage back when projections upon the said carriage respectively come to the ends of their screws. The thread guides, have a forward movement independent of the carriage by means of a rotating cam, thus causing the guides "to move rapidly at intervals, so as "to lay the yarn diagonally" by means of studs on the circumference of a pinion and a lever. An axis passing the whole length of the machine, and carrying the said pinion at one end, has a screw at its other end, which gives motion to a pinion in connection with an ordinary registering apparatus. The necessary tension is given to the yarns by causing them to pass round certain small rollers.

[Printed, 8*d.* Drawing.]

A.D. 1857, May 29.—N° 1517. (* *)

WILLIS, Thomas, and CHELL, George.—"Improvements in "machinery for spinning, doubling, and winding yarn and thread."

This invention consists, firstly, in driving the vertical spindles of winding machines by friction and gravitation and toothed wheels instead of bands. A mode of carrying out this part of the invention is described, in which the spindle is driven by a disc fixed upon it being in contact with a friction pulley placed upon a horizontal revolving shaft.

Secondly, in certain self-acting motions applicable to machines for spinning, doubling, and winding, for stopping the spindle or pin bobbin, or both, when the yarn or thread breaks or fails. One mode of effecting this is described as consisting of the use of a hooked piece of metal so arranged as to be sustained by the thread in its progress to the bobbin, but which is allowed to fall upon the thread failing, and its lower end then drops into a hole in the disc which drives the spindle, and so stops the rotation thereof. Another method consists in having a "bevelled projection" upon the wire or other piece of metal suspended from the thread, which, when the wire falls upon the breakage of the thread, acts upon a lever and "tumbler catch," the latter then lifting the disc upon the spindle out of contact with the friction pulley which drives it. A similar arrangement to the latter is also described as being applicable where spindles are driven by bands and warves, the "tumbler catch" being made to act, when requisite, so as to lift a bush and draw a pin connected thereto from out a hole in the warve, thus breaking the connection between the warve and the spindle.

Thirdly, in improved machinery for delivering the yarn or thread to the bobbin in the proportion required by the conical shape of the latter, this improved machinery also serving to regulate the drag of the yarn or thread, and to free or loosen it from the hank or skein. This is effected by causing the yarn or thread in going from the swift to the bobbin to pass over a rod supported by "compensating levers," which are moved to and fro on a "fulcrum shaft" by a crank pin in a revolving wheel, or by other suitable mechanism.

Lastly, in varying the speed of the spindles and bobbins to compensate for the different diameters of the conical parts of the bobbins, "by giving a lateral to-and-fro motion to the shaft with "the friction discs by which the spindles are driven."

[Printed, 10*d*. Drawing.]

A.D. 1858, December 2.—N° 2757. (* *)

ROBERTSON, William, and ORCHAR, James Guthrie.—"Improvements in machinery or apparatus for winding yarns or "thread."

This invention embraces in particular "a superior mode of "driving and varying the velocity of the winding spindles, and "the accurate and rapid winding on of the yarn or thread in the "cop or pirn form."

"According to one modification of this machinery, the ordinary "long open rectangular framing has fitted in each side of it a "long horizontal main shaft running in suitable bearings at a "continuously uniform rate. These two shafts are driven by "a short end transverse horizontal shaft, carrying fast and loose "driving pulleys, and geared at each end to the two main parallel "shafts just mentioned by bevil wheels. These shafts are each "fitted at regular intervals with a series of metal edge frictional "pulleys, one for each winding spindle in the line, and both "shafts are capable of an endlong or longitudinal traverse in "their bearings, operating simultaneously with their rotatory "action. Each spindle, which is carried in a footstep in a short "bracket projecting from the framing, and steadied by a collar "bearing in a fixed rail higher up, is fitted near its lower end "with a small horizontally faced weighted pulley or frictional "face piece, the bottom working face of which is covered with a "layer of leather or other suitable frictional material. In this "way each spindle is in working gear with the driving shaft "purely through the frictional contact action of the circumferential edges of the frictional driving pulleys with the lower frictional faces of the pulleys on the spindles. The necessary "variable rate of revolution of the winding spindles is given by "the varying distance of each driving disc from the spindle's

‘ centre, consequent upon the longitudinal traverse of the main
“ disc shafts, this traverse being obtained by arranging a train
“ of gearing in connection with the main band pulley driving
“ shaft, to work a cam, eccentric, or heart, which again actuates
“ a lever connected directly to the traversing main disc shafts.
“ It is prepared to have all the main driving pulleys on the same
“ relative side of their spindles, as observed when the spectator
“ looks upon the bank of spindles on the side where he stands,
“ and the endlong traverse of the main driving shafts occurs in
“ reverse directions. Immediately above the spindle collar there
“ is in each case a small driver or disc piece fast upon the spindle,
“ which driver takes into a cross slit in the head of the winding
“ pirn on the spindle. The upper portion of each spindle stands up
“ between or in front of a pair of parallel vertical guides fast on
“ the upper side of a stationary rail carried by the framing, which
“ guides are for the purpose of retaining and steadying an open
“ metal cone piece passed on to the spindle, and which cone rises
“ as the pirn fills with thread or yarn. To the back of each cone
“ there is jointed a short bell-crank lever, one arm of which hangs
“ downwards behind the spindle, whilst the other projects forwards,
“ and has an open eye to act as a finger in laying the yarn
“ upon the pirn, the thread being passed through this eye or
“ guide. It is this which gives the necessary shaping action in
“ combination with the gradual ascent of the cone piece and the
“ varying velocity of revolution of the winding spindles. Each
“ bell-crank finger or layer-on derives its vibratory motion from
“ the action of a long laterally traversing plate, one for each row
“ of spindles; this plate is in the form of a thin deep bar set on
“ edge along the whole length of the frame, and carried upon
“ suitable transverse arms set in supporting guide eyes. These
“ arms extend inwards from each side to near the longitudinal
“ centre of the frame, and they carry small bearing pulleys, between
“ which a differentially or double inclined sliding piece of metal is
“ placed. This is so arranged that at each traverse the long deep
“ plates already mentioned are traversed laterally, either both in
“ the same direction or in reverse directions, being brought back
“ at each return by a spring. Thus these plates or deep bars
“ acting against the lower ends of the line of bell-crank fingers
“ give the latter the required vibratory traverse for the laying on
“ of the yarn, and the varying movement of the main shafts acts
“ at the same time so as to produce a uniform take up of the
“ yarn by giving the spindles the most rapid rotation at the time

" when the laying-on fingers are at the top or thinnest portion of
" the pirn or cop. When the pirn is full wound, the frame of
" the cone apparatus having arrived at the top of its lift, presses
" against an inclined catch on the upper end of a vertical vibrating
" lever, and a catch on this lever then allows another short horizontal
" lever to fall down, and in falling to elevate the spindle or
" frictional face plate clear off the driving pulley, and thus stop
" the spindle. Instead of thus varying the spindle's rate as hereinbefore
" described, by varying the sphere of action of the driving
" pulleys on the main shafts upon the frictional faces of the spindles,
" the main shafts themselves may have their velocity varied without
" interfering with the working of the frictional apparatus. This
" variable rate of the driving shafts may be accomplished in
" different ways by means of simple variable gearing."

Another part of this Specification relates to machinery for winding yarn or thread on to reels and bobbins.

[Printed, 1s. Drawing.]

A.D. 1859, February 12.—N° 395. (* *)

WILLIS, Thomas, and CHELL, George.—" Improvements " in machinery for spinning, twisting, doubling, and winding " yarns and threads."

This invention relates to the machinery described in Thomas Willis' Specification of a Patent dated A.D. 1845, No. 10,720, Old Law. [*See Appendix*, page 736.]

In the present invention revolving friction discs are employed for imparting motion to the bobbins or spindles, " which discs
" serve as pressers for building the yarn or thread on to the
" bobbins or spindles, or the discs may be used for driving the
" bobbins or spindles while the building of the yarn or thread on
" the bobbins or spindles is effected by pressers of the usual construction;
" also in varying the speed of the bobbins or spindles
" and yarn guides according to the increasing diameter of the
" yarn or thread wound on the bobbins."

A number of modifications of the invention are described, the bobbins upon which the yarn is wound being, in some cases, turned round by revolving conical friction surfaces, and the yarn built upon them without the aid of cups or pressers, while in other cases both the revolving friction surfaces and cups or pressers are used. In another modification the parallel part of the bobbin is flattened, and fits into a revolving warve. A stud connected to a revolving wheel is also employed to vary the speed of the bobbins, the stud actuating a second wheel in connection with the driving apparatus of the spindles by taking into a slot therein, and working at different distances from the centre of such wheel during its revolution. Another mode of effecting the same object consists in the use of a friction pulley and disc, the operation of which is governed by a cord passing round a cone and other apparatus; and a similar apparatus also controls the traverse of the guides by which the yarn is directed to the bobbins. The patentees also mention, as forming parts of the invention, "causing the yarns or threads when supplied to machines for "spinning, twisting, doubling, and winding, to pass through suffi-"cient space, so as to enable the attendant to detect the defects "and to stop the machine before such defects are wound on the "bobbins or spindles;" and, connecting the guide wires to vibrating levers, "whereby they are moved in the arcs of circles."

[Printed, 10*d.* Drawing.]

A.D. 1860, January 26.—N° 200. (* *)

INGHAM, JOHN, and HINCHLIFFE, CHARLES.—"An in-"strument or apparatus to facilitate and simplify calculations, "and particularly adapted for computing the weights of cotton "warps, applicable also for woollen and worsted warps, and warps "of other fibrous substances."

"This invention consists in the employment of a series of "sliding scales suitably graduated or divided and lined, and "marked or figured in such manner that one line of marks or "figures may contain the 'multiplier,' and 'product' another "line the 'multiplicand,' another line of marks or figures the "'divisor,' and another the result; and for convenience of form "or portability, and for facility in using, we make the scales in "circles or rings placed either one within another, or side by "side, with suitable means for keeping them in position, and for "sliding or moving them relatively to each other. By means of "this instrument we can shew with facility and accuracy at one "glance the exact weight of any warp in pounds and ounces, of "any 'counts' or thickness of yarn, number of ends or lengths, "either in cotton, woollen or worsted, or other fibrous substances, "and thus dispense entirely with all figuring."

Two moveable slides, one a counterpart of the inner fixed scale, and one (removeable) for cotton, woollen, or worsted, as the case may be, and four fixed scales are employed; the three exterior and fixed scales give the weight required.

The scales may be arranged upon a cylindrical surface instead of a flat disc, or other constructions may be used.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1860, February 2.—N° 273.

FITZGERALD, William. — (*Provisional protection only.*)— "The production of bands or strips for application on petticoats "and similar ornamental purposes." The inventor proposes "to weave or manufacture strips or bands of linsey winsey cloth, "or such like material in breadths of from one inch or under, to "twenty inches of white, black, or any color or combination of "colors, and adhesive or not, and with patterns or designs on one "or on both sides thereof, so as to be reversible or otherwise, or "without any designs or patterns, and which said strips or bands "are intended to be applied by suitable means of attachment to "petticoats, skirts, or other articles to which they may be applicable "manufactured of linsey winsey, or other material, for "the purpose of ornamenting the same or varying the ornamentation "or appearance thereof at pleasure by substituting new "bands or strips of the aforesaid description as desired."

[Printed, 4*d*. No Drawings.]

A.D. 1860, February 27.—N° 532. (* *)

ROWCLIFFE, John Barnouin.—(*Provisional protection only.*) —"Improvements in pin winding machinery."

This invention "consists in so constructing pin winding machines "that any required number of yarns or threads can be "wound together, and at perfectly even tension, on each pin "bobbin." The required number of yarns or threads "are "brought from bobbins supported in a creel, and pass over a "guide rail and through a traversing eye; they then pass around "a stud by which the proper tension is given, and thence to the "bobbin, which is supported on a skewer furnished with a cog "pinion, the teeth of which are V-shaped, or otherwise shaped to "render them easy of disconnection. The machine is made with "any required number of bobbins, and each bobbin is turned "round at a positive velocity by a wheel gearing into the pinion "on the skewer; the bobbin being carried round with the pinion "by a pin taking into a hole in the end of the bobbin, or friction "pulleys may be substituted for the wheels and pinions."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 16.—Nº 702. (* *)

WOOD, William.—"Improvements in the manufacture of "fibrous yarns and fabrics of cotton, flax, wool, or other material."

This invention consists in the first place "in producing yarns "by cementing the fibres of cotton, hemp, flax, wool, or other "materials, separate or mixed, when prepared and drawn out to "the degree of fineness of yarn desired, by applying suitable "adhesive matter, in place of causing them to combine by spinning or twisting the fibres." The invention also relates to the manufacture of fibrous yarns by combining the method heretofore practised with the mode above described, "for which purpose "yarns formed by spinning or twisting the fibres together have "adhesive matter applied thereto, by which loose unspun fibres "are caused to adhere thereto."

"The above yarns are used in making fabrics by the processes "of weaving heretofore employed when using spun yarns, and "the fabrics produced are finished by ordinary well-known processes. In some cases the cementing materials are moistened "by steam, or otherwise, when weaving them into fabrics."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1860, June 12.—No. 1437. (* *)

WILLIS, Thomas, and CHELL, George.—"Improvements "in machinery for twisting, doubling, and winding yarn and "thread."

The invention consists "in winding the yarn or thread on to "the bare spindles or skewers" of machines for twisting, doubling, and winding "instead of winding it on to bobbins or "spools as now customary, or on to a conical piece of the shape "of the foundation of the cop fitting on the spindle. The bare "spindle or skewer fits in a socket which is turned round in the "usual manner, or it may be driven in any other convenient "manner, and when the cop is formed, the spindle, with the "yarn or thread on it, is placed in a shuttle for weaving; or the "cop is doffed from the spindle and put on the shuttle skewer; "or the cop, with or without the spindle or skewer, is otherwise "disposed of as may be found requisite for any other process."

Different modifications of the invention are described; in some cases the yarn being wound upon tubes of paper or other material placed upon the spindle, instead of upon the spindle itself. The spindle in some cases is supported in a revolving socket, and a piece of vulcanized india-rubber or other elastic material is placed round the spindle at the upper part of the socket, so as to ensure the spindle being carried round along with it. A part of this invention, relating to the machinery for which a Patent was obtained by the above-named Thomas Willis in 1845, No. 10,720, [*See Appendix, page* 736] consists in applying a pressing roller to the bobbin upon which the yarn is being wound, such roller being pressed against the bobbin by means of a weight attached to a cord, the latter being connected to a stud projecting from a plate which is furnished with a second stud upon which the pressing roller revolves. The spindle is mounted in a revolving socket in which is a slot "for the purpose of being able to drive " a key through" when the end of the spindle breaks or becomes damaged.

[Printed, 8*d*. Drawing.]

A.D. 1860, July 27.—N° 1821. (* *)

BRIGGS, EDWARD.—(*Provisional protection only.*)—"The application of spun silk waste made in winding and weaving to " manufacturing purposes, and improvements in machinery employed in operating on such silk waste."

This invention consists in rendering spun silk waste available for manufacturing purposes, "either alone or combined with other " silk or other materials. The machinery employed consists of a " feeding apparatus which delivers the waste to two travelling " sheets of pins, commonly called porcupine sheets, or other " equivalent agents, from whence they are taken by a cylinder " covered with pins; the object of the machinery, which may be " considerably modified, being to take the twist out of the spun " silk waste, thereby converting the fibres as near as possible to " their original state. The subsequent machinery required for " dressing, spinning, and weaving is similar to that usually " employed in the manufacture of silk."

[Printed, 4*d*. No Drawings.]

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ERRATUM IN PART I.

Since the publication of the first volume of the present series of Abridgments the following erratum has been discovered therein :—

Page 480, line 10 from top, *for* "January 4" *read* "January 6."

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Broomsgrove (*Literary and Mechanics' Institute*).
Burnley (*Mechanics' Institution*).
——— (*Literary Institution*).
Burslem (*Wedgwood Institute*).
Bury St. Edmund's (*Mechanics' Institution*).
Canterbury (*Working Men's Club*).
Cardiff (*Free Library and Museum*).
Cardigan (*Mechanics' Institute*).
Carharrack (*Literary Institute*).
Carmarthen (*Literary and Scientific Institution*).
Cheltenham (*Literary and Philosophical Society*).
——— (*Permanent Library*).
——— (*Working Men's Club*).
Chertsey (*Literary and Scientific Institution*).
Chester (*City Library and Reading Room*).
Chesterfield (*Mechanics' Institution*).
Chichester (*Literary and Philosophical Society*).
——— (*Literary Society and Mechanics' Institute*).
Coalbrookdale (*Literary and Scientific Institution*).
Cockermouth (*Mechanics' Institution*).
Colchester (*Literary Institution*).
——— (*Young Men's Christian Association*).
Compstall (*Athenæum*).
Coventry (*Free Library*).
——— (*Institute*).
——— (*School of Art*).
Crediton (*Working Men's Club*).
Dartmouth (*Mutual Improvement Society*).
Darwen, Over (*Mechanics' Institution*).
Deal (*Deal and Walmer Institute*).
Denton (*Denton and Haughton Mechanics' Institution*).
Derby (*Mechanics' Institution*).
Devonport (*Mechanics' Institute*).
Dewsbury (*Mechanics' Institution*).
Doncaster (*Free Library*).
——— (*Great Northern Mechanics' Institute*).
Dorchester (*County Museum and Library*).
——— (*Working Men's Institute*).
Dudley (*Mechanics' Institution*).
Dukinfield (*Mechanics' Institute*).
——— (*Village Library and Reading Room*).
Dumbarton (*Philosophical and Literary Society*).
Dumfries (*Mechanics' Institution*).
Eagley, Bolton-le-Moors (*Library and Institute*).
Earlestown, Newton-le-Willows (*Mutual Improvement Society*).
Edinburgh (*Horological Society*).
——— (*Mechanics Library*).
——— (*Philosophical Institution*).
——— (*Royal Society of Arts*).
——— (*Royal Scottish Society of Arts*).
——— (*Subscription Library*).
——— (*Watt Institution and School of Art*).
——— (*Working Men's Club*).
Egham (*Literary Institute*).
Egremont (*Mechanics' Institution*).
Exeter (*Devon and Exeter Institution*).
Faversham (*Institute*).
Frome (*Literary and Scientific Institution*).
Gainsborough (*Literary, Scientific and Mechanics' Institute*).
Garforth, near Leeds (*Working Men's Club*).

Glasgow (*Athenæum*).
——— (*Central Working Men's Club and Institute*).
——— (*Institution of Engineers in Scotland*).
——— (*Mechanics' Institution, Bath Street*).
——— (*Philosophical Society*).
Grantham (*Public Literary Institution*).
Gravesend (*Gravesend and Milton Library and Reading Rooms*).
Greenwich (*Working Men's Institute*).
Guildford (*Mechanics' Institute*).
Halesworth (*Mechanics' Institute*).
Halifax (*Literary and Philosophical Society*).
——— (*Mechanics' Institute*).
——— (*Working Men's College*).
Haslingdon (*Institute*).
Hastings (*Literary and Scientific Institute*).
Hawarden (*Literary Institution*).
Hebden Bridge, near Todmorden (*Mechanics' Institution*).
Helston (*Reading Room and Library*).
Hereford (*Natural History, Philosophical, Antiquarian, and Literary Society*).
Hertford (*Literary and Scientific Institution*).
Heywood (*Mechanics' Institute*).
Holbeck (*Mechanics' Institution*).
Hollingwood (*Working Men's Club*).
Holywell Green (*Mechanics' Institution*).
Huddersfield (*Mechanics' Institution*).
Hull (*Church Institute*).
——— (*Literary, Scientific and Mechanics' Institute*).
——— (*Lyceum Library*).
——— (*Royal Institution, Albion Street*).
——— (*Young People's Institute*).
Huntingdon (*Literary and Scientific Institution*).
Kendal (*Christian and Literary Institute*).
——— (*Working Men's Institute*).
Kidderminster (*Mechanics' Institute*).
Lancaster (*Mechanics' Institute and School of Science*).
Leeds (*Church Institute*).
——— (*Library*).
——— (*Mechanics' Institution and Literary Society*).
——— (*Philosophical and Literary Society*).
——— (*Working Men's Institute*).
——— (*Young Men's Christian Association*).
Leighton Buzzard (*Working Men's Mutual Improvement Society*).
Leith (*Mechanics' Subscription Library*).
Lewes (*Mechanics' Institute*).
——— (*School of Science and Art*).
Lincoln (*Mechanics' Institute*).
Liverpool (*Institute*).
——— (*Mechanics' Institute*).
——— (*Medical Institution*).
——— (*Polytechnic Society*).
Llanelly (*Chamber of Commerce and Reading Room*).
London (*Athenæum Club, Pall Mall*).
——— (*Beaumont Institute, Mile End*).
——— (*Bedford Working Men's Institute, Spitalfields*).
——— (*Birkbeck Institution, Southampton Buildings, Chancery Lane*).
——— (*Bow Common Working Men's Club, Devon's Road, Bow Common*).
——— (*Christchurch Working Men's Club, New Street, Lark Hall Lane, Clapham*).
——— (*Clerkenwell Club, Lower Rosoman Street*).
——— (*Holloway Working Men's Club and Institute, Holloway Road*).
——— (*Literary and Scientific Society, Wellington Street, Islington.*)
——— (*Literary and Scientific Institution, Walworth*).
——— (*St. James and Soho Working Men's Club, Rupert Street, Soho*).
——— (*St, Mary Charterhouse Working Men's Club, Golden Lane*).
——— (*South London Working Men's College, Blackfriars Road*).
——— (*Southwark Working Men's Club, Broadwall, Stamford Street*).
——— (*Spring Vale Institution, Hammersmith*).
——— (*Working Men's Club, Brixton Hill*).
——— (*Working Men's Club, St. Mark's, Victoria Docks*).
——— (*Working Men's Club and Institute Union, Strand*).
——— (*Working Men's Club and Institute, Battersea*).
——— (*Working Men's College, Great Ormond Street*).
Loughborough (*Working Men's Club and Institute*).
Madeley (*Anstice Memorial, Workmen's Club and Institute*).
Manchester (*Athenæum*).
——— (*Law Library*).
——— (*Mechanics' Institution*).
——— (*Natural History Museum, Peter Street*).
——— (*Portico Library, Moseley Street*).
——— (*Royal Exchange Library*).
Mansfield (*Co-operative Industrial Society*).
——— (*Mechanics', Artizans', and Apprentices' Library*).
Melksham (*Mutual Improvement Society*).
Merthyr-Tydfil (*South Wales Institute of Engineers*).
Middlesborough (*Mechanics' Institution*).
Modbury (*Mechanics' Institution*).
Mossley (*Mechanics' Institute*).
Newark (Mechanics' Institute).
Newcastle-upon-Tyne (Mechanics' Institution).

Newcastle-upon-Tyne (*Working Men's Club*).
New Mills, near Stockport (*Mechanics' Institute*).
Newport, Isle of Wight (*Young Men's Society and Reading Room*).
Northampton (*Mechanics' Institute*).
Nottingham (*Free Library*).
——— (*Mechanics' Institution*).
——— (*Subscription Library, Bromley House*).
Oldham (*Analytic Literary Institution*).
——— (*Mechanics' Institution, Werneth*).
Ormskirk (*Public Library*).
Oswestry (*Institute*).
Patricroft (*Mechanics' Institution*).
Pembroke Dock (*Mechanics' Institute*).
Pendleton (*Mechanics' Institution*).
Penryn (*Working Men's Club and Reading Room*).
Perth (*Mechanics' Library, High Street*).
Peterborough (*Mechanics' Institution*).
Plymouth (*Working Men's Institute*).
Poole (*Literary and Scientific Institution*).
——— (*Mechanics' Institute*).
Portsea (*Athenæum and Mechanics' Institution*).
Preston (*Avenham Institution*).
——— (*Society of Useful Knowledge*).
Rawtenstall (*Mechanics' Institution*).
Richmond (*Working Men's College*).
Rotherham (*Rotherham and Masbro' Literary and Mechanics' Institute*).
Royston (*Institute*).
Ryde, Isle of Wight (*Philosophical and Scientific Society*).
Saffron Walden (*Literary and Scientific Institution*).
St. Just (*Institution*).
St. Leonard's (*Mechanics' Institution*).
Salford (*Working Men's Club*).
Saltaire (*Literary Institute*).
Selby (*Mechanics' Institute*).
Sheffield (*Branch Free Library*).
——— (*Literary and Philosophical Society, School of Arts*).
Skipton, Yorkshire (*Mechanics' Institute*).
Southampton (*Hartley Institution*).
——— (*Polytechnic Institution*).
Southport (*Athenæum*).
South Shields (*Working Men's Institute and Club*).
Spalding (*Mechanics' Institute*).
——— (*Christian Young Men's Association*).
Staines (*Literary and Scientific Institution*).
——— (*Mechanics' Institute and Reading Room*).
Stamford (*Institution*).
Stourbridge (*Church of England Association*).
——— (*Iron Works Reading Room and Library*).
——— (*Mechanics' Institution*).
——— *Working Men's Institute*).
Stratford (*Working Men's Hall*).
Sunderland (*Working Men's Club*).
Swansea (*Royal Institution of South Wales*).
——— (*Working Man's Institute*).
Tavistock (*Mechanics' Institute*).
——— (*Public Library*).
Thornton, near Bradford (*Mechanics' Institute*).
Thornton Heath, Croydon (*Workmen's Club*).
Todmorden (*Mechanics' Institution*).
Truro (*Cornwall County Library*).
——— (*Institution*).
——— (*Royal Institution of Cornwall*).
Tunbridge Wells (*Mechanics' Institution*).
——— (*Society of Literature and Science*).
Turton near Bolton (*Chapel Town Institute*).
Twickenham (*Economic Museum*).
Ulverston (*Temperance Hall*).
Uttoxeter (*Mechanics' Literary Institute*).
Wakefield (*Mechanics' Institute*).
Watford (*Literary Institute*).
Wells, Somerset (*Mechanics' Institution, Grove Lane*).
——— (*Young Men's Society*).
Whaleybridge (*Mechanics' Institute*)
Whitby (*Institute*).
——— (*Museum*).
——— (*Subscription Library*).
Whitehaven (*Mechanics' Institute*).
——— (*Working Men's Reading Room*).
Whitstable (*Institute*).
Wisbeach (*Mechanics' Institute*).
Wolverhampton (*Library*).
Wolverton (*Institute*).
Woodbridge (*Literary and Mechanics' Institute*).
——— (*Working Men's Hall*).
Worcester (*Railway Literary Institute*).
——— (*Workman's Hall*).
Workington (*Mechanics' Institution*).
York (*Church Institute*).
——— (*Institute of Popular Science, &c.*)
——— (*Railway Library*).

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